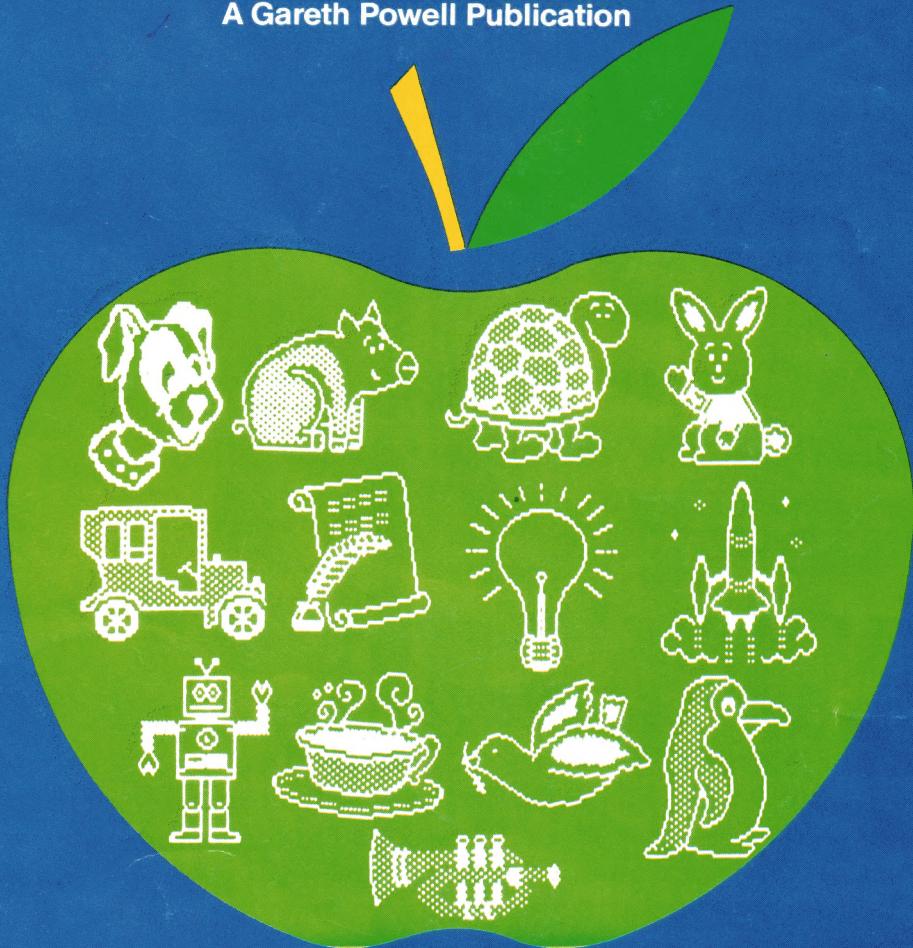


The Australian Apple Review

A Gareth Powell Publication



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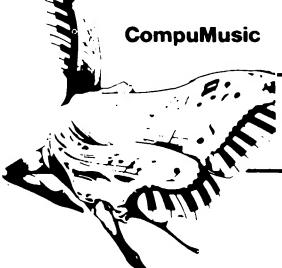
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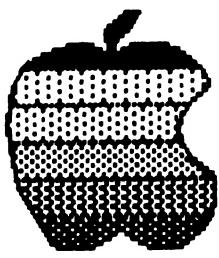
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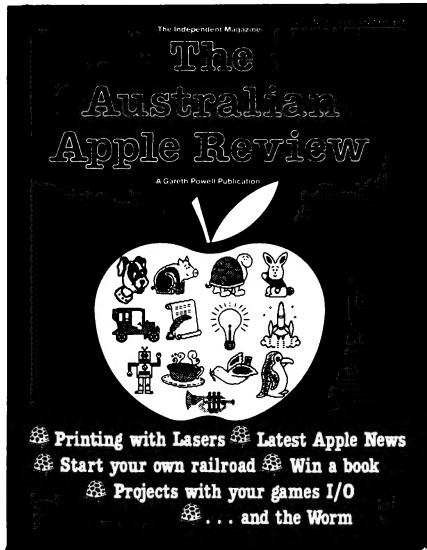
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The Australian Apple Review



The Australian Apple Review

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EDITORIAL

*"The Moving Finger writes; and having writ,
Moves on: nor all your Piety nor Wit
Shall lure it back to cancel half a Line,
Nor all your Tears wash out a Word of it."*

A bit of culture from Fitzgerald's translation of "The Rubaiyat of Omar Khayam" to bring some style to what would appear to be my last editorial.

The first editor of this magazine was Graeme "Phar Lap" Philipson, who got it off to a racing start. He then headed off for great glory (and a steady salary) to the The Yankee Group, from which he dispenses much wisdom and knowledge about computers and communications to people who pay handsomely for the information.

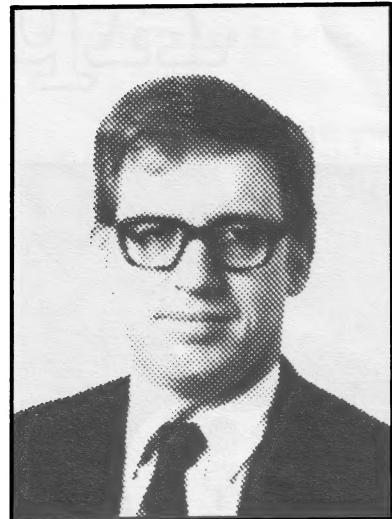
Since then I have sat in the editorial chair and seen the magazine through thick and thin – mainly thin. We have had our financial moments when the dreaded foot of the bailiff

could be seen appearing around the door, but we have staved off the enemy and kept publishing. Because I happen to love Apple computers, believe that they are the best machine for the price on the market, that they are the way of the future and, anyway, most of the people at Apple are fairly decent types. I will get my reward in the next world if not in this.

Now I have become the computer writer for so many newspapers that I simply cannot continue to edit this magazine. Taking over is a man far better equipped and qualified to occupy the editorial chair than myself. Gene Stephan is of Russian descent – indeed, he looks a little like Rasputin on an off-day – believes in "WordStar" (bit of a worry, that) and likes having C/PM on his machine. He writes well and knows a lot about working personal computers.

What we have in common is that he, too, loves Apples and believes in their future.

With Gene at the helm I believe the magazine will improve tremendously. I shall still be writing for it on a



continuing basis – nothing could stop that – but the main thrust, the direction, will be under the control of our new editor, Gene – The Mad Russian Monk – Stephan.

I hope he enjoys editing the magazine as much as I have.

See you around. □

Gareth Powell

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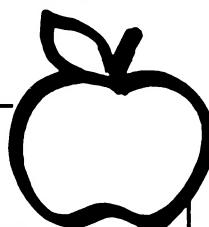
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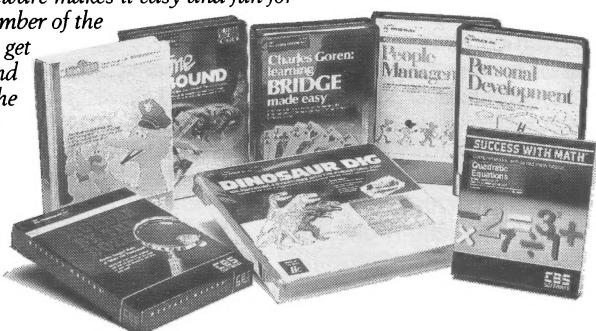
like the Children's Television Workshop, developers of *Sesame Street*, *The Electric Company* and *3-2-1 Contact*.

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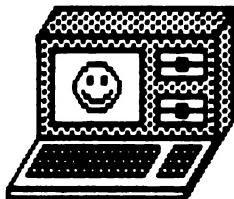


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News



A Mac by any other name . . .

It seems that as of the 24th January, there is a new Macintosh - the Macintosh XL!

Now ordinarily, this would be NEWS and we would all be rushing around beside ourselves trying to gain a glimpse. In this case, however, it seems that rushing is unnecessary, for our new Mac XL is really the old Lisa 2/10 with a new name.

Quoting Peter Sandys, the product manager for Macintosh, on the Lisa, "So we're changing its name to Macintosh XL - to better communicate that the XL is really an 'extra large' Macintosh." I can only ask if this means that the old Mac is a "super small" Lisa? One day perhaps they'll even call the VAX a Macintosh XXL (extra extra large).

Whatever it all means, it is good news for those who already own a Lisa 2/10 or who are prepared to upgrade their Lisa 2 or 2/5, as compatibility with the "Macintosh Office" is assured.

New for the office

There are some great new releases on the way for the "Macintosh Office" - but don't worry, you have a little time to save the pennies or bend the arm of your bank manager.

First of all there's **AppleTalk** - a networking system to link up to 32 devices with a work area of about 300 metres at around \$75 per connection. Great if you're interested in more than one Mac and want many users to have immediate access to common information and peripherals. But, except for the price, it's been done before.

There's more! AppleTalk was

designed to interact with other networks - through "intelligent bridges" (other AppleTalk networks) and through "intelligent gateways" (non-AppleTalk networks).

Sounds like a promise of easy access to all those wash-your-mouth-out-IBM networks! No, it's more than a promise - it's a realisation that Apples and IBMs must co-exist in the business environment, so why not use what already exists? In the works is a board for the IBM PC to plug it into the AppleTalk network. Interesting?

Apple also has published the protocols for AppleTalk. Why this is great is because the software can be accessed at all levels and modified to suit. This means that third party software/hardware developers are set off on the right foot. I have been told that over 50 US companies have products under development for the AppleTalk Personal Network, and these include a Unix file server and the Ethernet Connection.

The bottom line - the circuiting to support AppleTalk was built into the Mac so you don't have to perform surgery on your box - connection takes only a few minutes.

The second piece of office news is that the **LaserWriter** is also due around July. You may have wondered why I said save the pennies when Talk will be cheap; LaserWriter looks like having a \$10,000 price tag.

What do you get for the money? If you can't answer that you haven't been reading AAR, as the people around this office are ga-ga with expectation. Perhaps a few notes.

- near typeset quality text with 300 dots per 2.54 cm
- eight pages of print per minute (including overhead transparencies)
- two pages of print per minute with text/complex graphics - in any format
- IBM compatible (Wordstar).

And, if you get AppleTalk, up to 31 Macs can share in this piece of delight \$10,000 still a little high? The LaserWriter is run by a 12 megahertz Motorola 68000 (familiar?) with half a meg of ROM and one and a half meg RAM. Not quite your usual dot matrix or daisy printer! □

Macintosh information management system

Now available is DB Master Macintosh by Stoneware, distributed by Imagineering. This was written specifically for the Macintosh, to store, organize, retrieve and reproduce information. Both the mouse and the keyboard can be used for program options, and the pull down menus are consistent with other Macintosh programs from Apple.

DB Master Macintosh lets a user create large text fields, store complex formulas and print reports. It runs on a standard single drive Macintosh.

Imagineering, (02) 212 1411.

Championship Lode Runner

Championship Lode Runner from Broderbund is a new version of the original popular game Lode Runner, and aimed at the large number of players who have become Lode Runner fanatics since the original 150 level version was introduced in 1983.

Championship Lode Runner has 50 complex screens and is said to be much more intricate and difficult. It will be available for Apple II+, IIe, and IIc.

Imagineering, (02) 212 1411.

Education grants

Applications are now being accepted for the 1985 Apple Education Foundation Grants.

In 1984 grants worth over \$80,000 were made to researchers and developers in the field of computer-based teaching and learning systems.

The Foundation will provide similar grants in 1985, with special emphasis on projects for below Year 8 levels. Programs which are easily transportable across all areas of teaching and learning are also more likely to be successful.

Closing date for applications is March 30 1985. Guidelines and application forms can be obtained by writing (not telephoning) to the Apple Education Foundation, PO Box 371, North Ryde, NSW 2113. □

Is CP/M dead?

by Gene Stephan

What a question to answer in my first piece for AAR – particularly as this is to introduce a CP/M section to the magazine! The question has to be modified to "Is CP/M dead on the Apple?", because the answer has to be "NO".

Firstly, what is CP/M? The short answer is a Control Program for Micros. In fact it can be regarded as the grandaddy of current disk operating systems. Unfortunately, on the PCs and other 16 bit micros, the wreaths have already been laid and the grass is growing thick. On the Apple it's an entirely different story.

The story is not different because Apple are slow to change. Rather, it is because the first chip capable of running a micro was Intel's 8080, released in early 1973. CP/M, commercial in 1976, was written to control those micros and so used 8080 code.

The Apple story really starts in 1977 with the Apple II. When the II was new, Apple Computer Inc saw it as a serious machine. Authorised dealers were prohibited from displaying games software anywhere near the hardware, and business applications were stressed.

Part of the reason was that in those days the Apple II was one of the more expensive micros around, and logic dictated that if you were priced at the top of the market, you did not indulge in lowly games. Apple Inc saw the error of their ways quite smartly – and were even able to raise the price tag with the II+.

The reason why games are never too far from the Apple is purely a matter of hardware design. A 24X40 video out, light disk storage and a graphics efficient 6502 CPU are not the best credentials for a serious machine. However, they are excellent credentials for a general purpose unit – entertainment with some light work. The masses loved and the masses bought.

So how does CP/M fit in? Well,



there are certain advantages to being "masses". When masses want, there is usually someone around who will.

Video compatibility with other machines was wanted, so 80 column boards materialized. More disk space was wanted, so DOS 3.3 and ProDOS for hard disk happened along. (One can only wonder what will happen with the laser disks.)

Serious applications software was already there – only not in a form accessible by the Apple. So CP/M and the Z80 board bridged the gap.

Now some people will immediately stand up and say "wot about Zardax" and "wot about Appleworks". Great – for the inexperienced or part-time user. Zardax is easy, well documented, and if in doubt help is an STD call away. But Zardax cannot compare with, for example, Wordstar.

Wordstar (WS) is not the ultimate in word processing programs, but as an example will show why CP/M is not dead on the Apple.

* **WS is available on almost all machines** operating under CP/M or MS DOS. This means that if you learn WS on your Apple and ultimately have to work WS on an IBM, there's no relearning to do. Zardax is only available for the Apple.

* **WS can be heavily patched**, so your copy can be CUSTOMIZED to your applications – this includes all the HELP screens and control codes as well as the printer drives. Not so with Zardax.

* **WS is easily copied**, and so if your customization kills your disk you don't cry. Zardax is heavily copy protected. If the disk dies then Mt Gravatt, Queensland, may just as well be at the end of the world.

* **WS allows data to be read** from a variety of programs such as **dBase** and **Multiplan**, and worked with **Spellstar**, **Correctstar**, **MailMerge** and **Abstat**, so your data need only be entered once. Zardax data disks created on the II+ won't even print out on a IIe!

To be fair, there are criticisms. Looking at Wordstar, it is a more difficult word processor to work than Zardax. My "quick" list of control sequences and other commands numbers over 120! No, I never use them all, but they are there.

CP/M programs

In subsequent issues, the CP/M Section will not deal with CP/M as such. Rather, CP/M programs such as Wordstar, MailMerge, dBase and Multiplan will be looked at and advice given on their use. In order to do this, I will end with a table of CP/M resident commands (DOS direct commands), file naming conventions and utility use.

Table: CP/M Reference

General

A>	CP/M ready prompt Shows logged drive as A: Drive 1 = A; Drive 2 = B; etc
CNTRL C	To warm boot the system. CP/M does not allow indiscriminate disk changes as in DOS 3.3.
*	CP/M wildcard. ** means all files, *.BAS means all BASIC files.

Resident Commands

(use whenever system ready)

DIR	Directory of logged disk
ERA	+ file name to Erase file
REN	Rename (new filename = old file name)
SAVE	Save a block of memory
TYPE	+ file name to list contents to monitor

Utilities (files MUST be on logged disk to use)

ASM	Assemble a file (name). HEX
-----	-----------------------------



Where the time comes up like thunder . . .

On most professional computer systems there is a built-in clock which can time-stamp documents. In many cases the time can be a vital statistic without which a document is worthless. It can also be extremely handy when searching for specific material and checking on the last version written. Sadly the Apple IIgs and IIe do not have this fairly vital facility although, of course, the Macintosh and the Lisa do. (Even our portable NEC 8201A and our TRS 100 have built in clocks, so it is no startling breakthrough).

CP/M SECTION

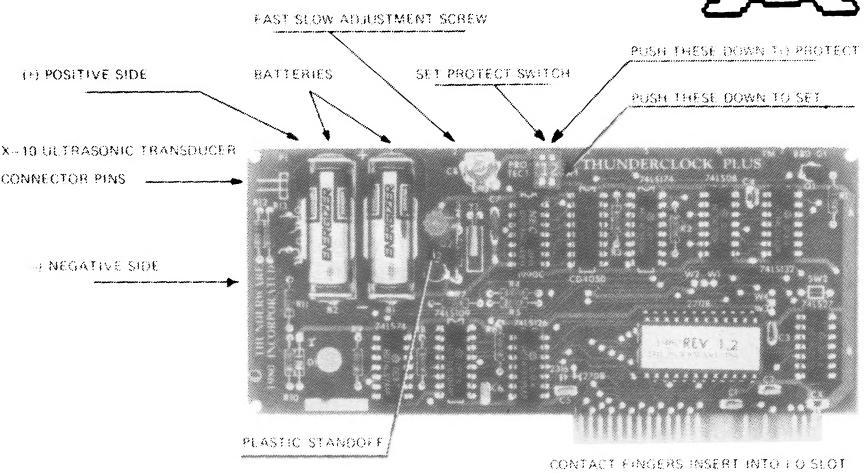
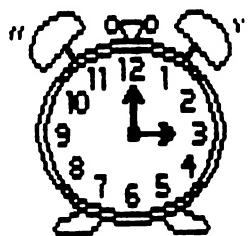
DDT	Debug machine language code
ED PIP	Evoke the CP/M editor Peripheral Interchange Program. Works similar to DOS FID program by copying files from eg one drive to another. Syntax: PIP B:=A:TEST.* means to copy all programs called TEST. (anything) FROM A: to B: Returns the amount of unused disk space available. STAT C:** gives complete information on ALL files on drive C:
STAT	

File Conventions

*.ASM	ASM source code file
*.BAK	Backup file
*.BAS	BASIC file
*.COB	COBOL source file
*.COM	COMMAND file - the only type of file which can be run directly from the A
*.DBF	dBASE II data file
*.FOR	FORTRAN source file
*.OVR	Overlay file
*.\$\$	Temporary file



What we have is a piece of



If you need a clock on your Apple then the answer is undoubtedly the Thunderclock Plus, which seems to be a descendant of the Mountain Apple Clock I have been using for many years, but much improved.

The board fits in any slot from 1 to 7 and is battery run, which makes its timekeeping abilities totally independent of the Apple power source.

Years of use

How long do the batteries last? Truthfully, I have no idea. My board has lasted for five years and a bit with no need to change the battery, and Thunderclock think this is nothing exceptional. You are given plenty of warning when the batteries are about to give up the ghost, as an error message starts to intrude into the time screen print out.

The new Thunderclock Plus can be fitted with an Ultrasonic Interface that can be used with the BSRX-10 Command Console. Used in this way it will switch on lights, switch on the oven, turn down the airconditioner or start up the television. In truth, I just can't see the point of all this nonsense. What the devil are servants for? It may have some use as a burglar deterrent.

As the 2716 chip that operates the card was patented in 1980 and then again in 1981 you can see that here we are not on the cutting edge of technology.

equipment which I consider almost essential if the Apple is to be used as a true business machine.

Substantial list

It will run happily with a fairly substantial amount of software as follows:

DB Master, Visidex, Micro-Courier, Micro-Telegram, Time Manager, Cashier, Executive Secretary, Networks, Desk Calendar II, Store Manager, Data-Dex, Transcend 3, Accounting Plus Super/E, CPA Partner, PRO Partner, Softerm, C-Term, Os9 and Pascal Speed-up Kit.

This list is not exhaustive, and for a reasonably competent programmer almost any program can have Thunderclock patched in. All programs that work with Mountain Hardware clock card (and there are too many to enumerate) will work with Thunderclock.

The one new feature of this card is that it will work with ProDOS programs, which are becoming a bigger and bigger feature on the Apple program landscape.

If for you time is money and not something you spend building up your tan, then it is quite probable that you need a Thunderclock more than you think. The melodious Ken Guntar at CompuMusic (daft name, that) does the importing. You can contact him on (02) 692 9293. □

The Print Shop

**from Broderbund
(released by Imagineering)
\$69.95**

When The Print Shop box was placed before me, I thought "Oh no - not another graphics dump". Opening the box didn't reduce my gloom at all. Inside there were coloured envelopes, coloured fan form, coloured manual, coloured cards - and a very ordinary looking disk.

So I had two choices. One was the pile of paperwork on my desk, and the other was this box. No choice. I took the disk, I booted, I was surprised - even amazed.

The Print Shop is an amazing program! It is a graphics dump in that it allows you to print hi-res screens on a printer, but from here the similarity with all other graphics dumps ends and the fun begins.

Hardware

Hardware requirements are a II+, IIe, IIc or III in emulation, a drive and a dot matrix printer. If you don't have a printer, forget it - the program will be about as useful to you as aftershave is to me. If you have a printer but are worried, just look at all the printers that the program supports as easily as choosing SET UP from the MAIN MENU:

Apple DMP, Imagewriter, Scribe
Okidata 92/93
C.Itoh 8510
Star Micronics 10X/15X
NEC 8023A
Epson RX80/MX80 & 100
FX80 & 100

I used a Super 5 EN-P1091 which I obtained from Softcentre (Woollahra). This little unit is IBM parallel, but didn't miss a beat hooked onto my II+ through an Epson interface. This implies that if your printer is "none of the above" but is parallel and you suspect has some Epson compatibility, then The



Print Shop will probably work for you.

Once your hardware is right, you can convert your computer room into a mini print shop. At your fingertips are a number of fonts, borders (you'll get more runs from these ones!), ready made pics, layouts and of course the inevitable graphics editor.

What all this means is that you have a good deal of power. Unfortunately in most cases there are trade-offs and, an increase in power usually means a decrease in ease of use.

Let me sidetrack for a moment and define EASE and DIFFICULTY. Easy means that the program can be operated by a 7+ year old, without a manual. Difficult means that firstly a manual is required, and secondly the person who wrote the manual most probably had just been released from an institution and was seeking vengeance against us normal folk.

Power plus ease

The Print Shop makes no trade-offs. It is powerful AND easy to use. Once the disk is set up, you can have something like a personalised birthday card in your hand ready to sign in a few minutes, and the manual is not required.

Without calling on any imagination, the editor allows you to modify the 60 existing screens or create your own using keyboard, joystick or Koala Pad. Screen Magic allows text on your hi-res screen and also produces some interesting background for you to write on.

Summing up, the program is excellent. I cannot go so far as to say "The dazzling kaleidoscopes (from Screen Magic) will turn your computer into the centre of attention at parties" (page 18 of The Print Shop manual), but if you have a dot matrix printer and have had trouble with graphics, then this one is really for you.



Not tonight, darling – I'm getting rid of a headache

by Gareth Powell

There are several ways of dealing with stress ranging from a stiff Scotch and soda to a Valium sandwich to bio-feedback techniques.

The last method has sneaked into the public consciousness over the last few years, although bio-feedback has been around for quite a time – certainly since the days of "flower power".

The theory behind bio-feedback is that the brain sends signals to the body that tighten up the muscles, which in turn aggravate the state of stress. There seems to be a fair amount of evidence available to suggest that this theory is correct.

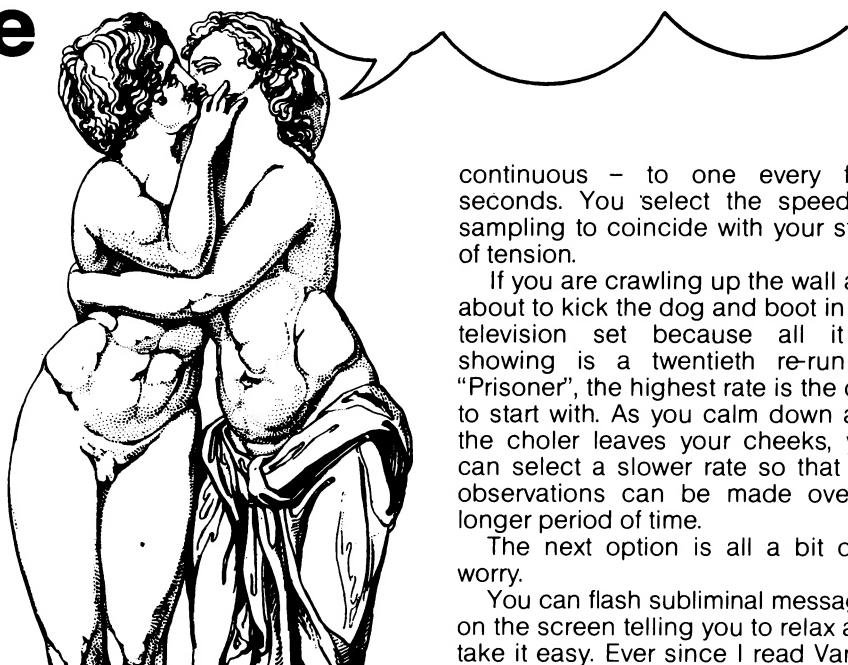
I find that my neck and shoulder muscles tense up into rods of iron when I am working flat out to meet a deadline. Getting those muscles relaxed gets the rest of my body relaxed, which in turn removes the tension from my nervous system. I know this works on an empirical basis.

For some years now there have been "electromyographs" available which record the states of tension in various parts of your body. Now someone has taken the obvious step and put the whole lot together with a personal computer – and there is a version for the Apple which should be here by the time you read this article.

"Relax"

The program is called "Relax" and consists of a small box of EMG (electromyograph) electronics, a headband that receives the necessary signals from your brain and looks like one of those sweatbands that joggers use, an audio cassette that helps you learn relaxation exercises, three program disks for your Apple, full documentation and a notebook in which you can record your journey towards Nirvana.

With normal bio-feedback equipment you have a series of electrodes



that you attach to various parts of your anatomy to make you look like the young Frankenstein. Now I know these electrodes cannot give you an electric shock. It says so on the packet. But I always find myself worrying about the possibility of having 240 volts surging through me, causing much pain and aggravation. Which is not the ideal state to be in when you are trying to induce a feeling of peace and tranquillity.

"Relax" is a great improvement – no electrodes. You just wrap the headband around your noggin and fasten it with Velcro strips. A wire runs from the headband to the EMG box which plugs into the computer. The headband has a built-in electric sensor which sends messages from your brain to the computer. These messages normally emanate from severe muscle contraction, which is what usually happens when you have got yourself into a frangled and non-relaxed state.

The first program on the computer, "Graph", puts on the screen the sort of chart you see produced in bio-feedback laboratories.

The computer is taking samples of your tension rates at speeds of your selection, which range from 60 samples a second – effectively

continuous – to one every four seconds. You select the speed of sampling to coincide with your state of tension.

If you are crawling up the wall and about to kick the dog and boot in the television set because all it is showing is a twentieth re-run of "Prisoner", the highest rate is the one to start with. As you calm down and the choler leaves your cheeks, you can select a slower rate so that the observations can be made over a longer period of time.

The next option is all a bit of a worry.

You can flash subliminal messages on the screen telling you to relax and take it easy. Ever since I read Vance Packard's "The Hidden Persuaders" I have been very leery of subliminal messages. Even when they are supposed to be A Good Thing. The user manual does not totally disagree with me. It suggests that subliminal messages have the same effect as diet slogans stuck to the refrigerator door. Which in my case is no effect whatsoever.

(For those readers who are interested in that sort of thing, I have been conducting for "Australian Playboy" a series of experiments to see whether subliminal messages can do anything for your sex drive and/or enhance your sexual attractiveness. The result appears to be that a bottle of sparkling burgundy – than which there is no worse drink – has a greater chance of success. Not that I am the ideal subject for such testing.)

Kaleidoscope

Better by far as a mind relaxer is a "Kaleidoscope" program that puts a series of continually moving and swirling and extremely restful patterns on the screen. Has the same effect on me as looking at a tankful of tropical fish.

Fascinating, because the patterns follow your mental tension and as



you calm down the pictures slow down into more peaceful patterns, which gives you an excellent idea of how well the system is working, and how your emotions are reacting.

This is a process of positive feedback which is inherently educational. If you can see yourself getting calmer you find yourself adjusting your thought patterns and your posture to enhance that effect.

After a while you can do it with no assistance from the pictures and eventually, and this is the end game, you can run the whole process through without putting on the headband and without switching on the computer. A bit like Yoga.

If you don't like the "Kaleidoscope" you can instead float with a balloon on the screen and as your mind totally relaxes the balloon gently descends into the hands of a waiting child. Not for me. Most of the kids I know would burst the balloon and giggle like a mad thing as I screamed in fright and terror. I'll stick with the "Kaleidoscope".

Plainly, this program has limitations. It doesn't cover the whole range of stress and it is, despite the electronic gadgetry, pretty simplistic.

For example, my tensions nearly always reflect themselves in my shoulder muscles and my neck – and the program simply doesn't measure stress in that area.

And there are many other ways of reducing physical and mental stress. Listening to good music being my favourite. Yoga being one that I know works amazingly well. Many people find that reading press releases from public relations companies induces a feeling of drowsiness.

Despite this, "Relax" is an useful tool in facing the stresses of the modern world even if it is by no means an universal panacea.

This is the first stress reduction program I have seen for a computer and no doubt we will be seeing more in the future. It does help to induce a positive attitude towards coping with stress, one of the ills of the modern world.

My problem is that I just can't see myself sitting in the office with a sweatband around my head and a wire running to the computer. It would confirm my fellow-workers' worst fears. □

Fun and gaming on the Macintosh

by Gareth Powell

Mac Vegas

Fighting words, but I think that Mac Vegas by Videx is the prostitution of a great computer. If all the Macintosh was invented for was playing silly gambling games in which, mathematically, the more you play the more you lose, then all those bright lads and lasses in Cupertino totally wasted their time and efforts.

There may be a point in that this program shows the utter futility of gambling. The slot machine gobbled up \$10,000 in ten minutes, which is not bad going. The roulette wheel is heavily rigged against the player with the double zero which doubles the odds in favour of the house and is, quite rightly, illegal in Europe.

What is difficult to get across is the utter boredom and ennui that these games create. Ian Fleming did us all a great disservice when he suggested through James Bond, Agent 007, that gambling casinos were glamorous. No, they are not.

This game manages accurately to reflect the atmosphere of a casino. It uses the graphics capability of the Macintosh to great effect, though how anyone is expected to get excited betting on Red in Roulette when the screen is monochrome totally defeats me. And you don't even get a free drink while they take the money off you.

But they do include a free copy of "A Book on Casino Gambling" by Virginia L Graham and C. Ionescu Tulcea as makeweight. At the beginning it says "Gamble with proven odds – not with Lady Luck." And then it has the sheer effrontery to say, "The methods of play we indicate are, of course, based on mathematical and computer analysis."

Any computer or mathematical analysis would tell you not to gamble on these silly, silly games, which make Mafia hoods get richer and lead people, literally, to suicide.

Ugh.



Funpak

Far more to the point is a set of games from Videx called Funpak.

My favourite is King Albert's Solitaire. Now I always thought Prince Albert died young and never became a king.

I now know why he died young. The game is a form of Solitaire but all the cards are exposed. Smart mathematician that I am, I had the whole thing sussed out.

After twenty games in which I did not get out once and had to put up with the unsympathetic jeers of the Mad Russian Monk, I decided to call it a day. There is no doubt you can break out – but you will need a mind like a steel trap.

Then there is "Four Across", a childish game where you have to secure four squares before the computer. A sort of complicated tic-tac-toe. I chose the expert level and, again, the computer beat me in twenty straight games.

This I find a challenge. This stimulates the grey cells, as Hercule Poirot was wont to say. These are games I can take an interest in, because they challenge my intelligence instead of insulting it by offering double zero on the roulette wheel.

I'll take Funpak over MacVegas any day of the week. □

Rails West



Strategic Simulations
\$39.95 (US)

by Gene Stephan

I couldn't help myself sneaking in this review of a program I just received directly from the States. I don't know if it is available in Australia, but anyone who likes a game where the grey matter is utilized should keep an eye out for it.

Although it is usually the computer who is my opponent, I most enjoy games where humans play humans and the computer takes care of the drudgery — the rules, the book-keeping, the honesty of unscrupulous OTHER players and so on. Rails West is just such a game. For the strong at heart there are many delights, like resourceful planning, shrewd decision making, guile and cunning in nurturing alliances just to make millions of dollars at the expense of others! For the computer there are also delights — keeping track of stocks, securities, loads, mergers, etc, etc.

Railroad tycoons

Rails West is a detailed simulation of railroading in the US in the late 1800s. Players assume the roles of tycoons and attempt by hard work, manipulation or just plain deceit to build their empires.

At the simplest level (between 1890 and 1895) the game would go through about 60 moves per player, and with two players, this would

mean about 2 to 3 hours of struggle. At level 3 (1870-1900), the game with the maximum 8 players can take around 25 hours to play. No, it doesn't mean that your home is invaded by a horde of would-be billionaires who never want to leave. The games can be stored at any stage on disk, and with disks being transportable, many homes can be invaded over the course of play!

As with most SS games, the package comes with maps and pads and the inevitable (16 page) manual. Lots of reading before playing, and believe me it's necessary.

To sum up, if you liked "Lemonade"



and rushed out to buy "Cartels and Cutthroats", you should be ecstatic with this one. Incidentally, I see that Spinnaker Software have brought out a program called "Trains" for the 10 to adult age group — must be some sort of revival going on over there!



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UTILICO SOFTWARE

Apple Home Companion

Publisher: Prentice-Hall

Price: \$31.50

Microcomputer books can be roughly divided into three groups:

A. Aimed at someone without a computer, but who desperately wants one.

B. Aimed at someone who has a computer and has visions of making millions programming part-time.

C. Aimed at someone who knows – and now wants to know some more.

Group A books therefore tend to be enticing, Group B books, condescending and Group C books, technical unless you know 51% of what's in them.

The Apple Home Companion is a book that aims at Group A and possibly lower Group B. It is a beginners' book, and bearing this in mind, I liked it.

At the most basic level, it is readable, with quotes from such likely computer people as Hawkeye Pierce from the 4077 MASH and Charles V from somewhere (the book doesn't say, and when I did history I used to sit and factorize the dates). But buried amongst the light humour and cartoons is excellent beginners' advice.

Talking about planning before buying, the Apple Home Companion says "The planning is easy if you can answer two questions –

1. What do I want my computer to do for me?

2. How much can I afford to spend on my system?"

This is a re-statement of the consultant's golden rule – software first THEN hardware + 10%.

The bulk of the book, however, is spent reinforcing why the Apple should be the choice. Topics covered range from spreadsheets to Sticky Bear learning, from Word Processors to Wizards and from Lode Runner to LOGO. Treatment of programs is short but accurate and the number dealt with is impressive. Plus there are some BASIC programs



10 REM APPLE MUSIC	2000 REM MUSIC DATA
20 HOME	2010 DATA 37,43,39,43,37,43,39,43,37,43
30 VTAB 10: HTAB 10	2020 DATA 50,43,41,43,47,43,56,128,94
40 PRINT "FUR ELISE"	2030 DATA 43,75,43,56,43,50,128,75,43
60 GOSUB 1000	2040 DATA 59,43,50,43,47,128,75,43,37
110 READ PITCH,DUR	2050 DATA 43,39,43,37,43,39,43,37,43,50
120 IF PITCH = -1 THEN 999	2060 DATA 43,41,43,47,43,56,128,94,43
130 DUR = DUR +30: IF DUR>255 THEN DUR = 255	2070 DATA 75,43,56,43,50,128,75,43,47
140 POKE 768,PITCH	2080 DATA 43,50,43,56,128,50,43,47,43
150 POKE 769,DUR	2090 DATA 41,43,37,128,63,43,35,43,37
160 CALL 770	2100 DATA 43,41,128,71,43,37,43,41,43
190 GOTO 110	2110 DATA 47,128,75,43,41,43,47,43,50
999 END	2120 DATA 171,75,255,39,43,37,43,39,43
1000 REM MACHINE LANGUAGE	2130 DATA 37,43,39,43,37,43,50,43,41,43
1010 REM TONE ROUTINE	2140 DATA 47,43,56,128,94,43,75,43,56
1020 FOR ADDRESS = 770 TO 795	2150 DATA 43,50,128,75,43,59,43,50,43
1030 READ VLUE	2160 DATA 47,128,75,43,37,43,39,43,37
1040 POKE ADDRESS,VLUE	2170 DATA 43,39,43,37,43,50,43,41,43,47
1050 NEXT ADDRESS	2180 DATA 43,56,128,94,43,75,43,56,43
1060 DATA 173,48,192,136,208,5,206,1,3	2190 DATA 50,128,75,43,47,43,50,43,56
1070 DATA 240,9,202,208,245,174,0,3,76	2200 DATA 128
1080 DATA 2,3,96,16,64,0,176,24	2210 DATA -1, -1
1090 RETURN	

BOOK REVIEW

ready to key in and a useful pullout card showing how everything fits together and listing the BASIC keywords.

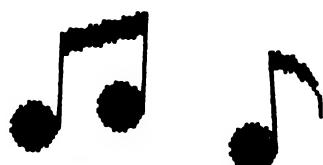
Summing up, this is a good book if you're planning on getting an Apple or have just purchased. It will give you some sound advice along with a feel to what is available in the way of software and hardware. My one criticism of the book is that, particularly in the early chapters, it tends to babble with such forgettable memorabilia as "So we'll take a brief tour and be back before the sun sets over the CPU." The book avoids technical jargon which is great for someone starting – but it should also avoid verbal clutter. Fortunately this decreases in later chapters. □



2000 REM GRANDFATHER'S CLOCK
2010 DATA 84,160,63,160,67,85,63,85,56,160,
63,85
2020 DATA 56,85,50,160,47,128,50,43,75,160,
56,85
2030 DATA 56,85,63,160,63,85,63,85,67,160,
75,85
2040 DATA 67,85,63,255,1,160,63,85,50,85,
41,160
2050 DATA 50,128,56,43,63,160,67,85,63,85,
56,85
2060 DATA 63,85,67,85,75,85,84,160,63,85,50,
85,84
2070 DATA 160,50,128,56,43,63,160,67,85,63,
85,56
2080 DATA 255,1,160,84,85,84,85,63,85,1,160,
56,85
2090 DATA 1,160,50,43,50,43,50,85,47,128,50,
43,75
2100 DATA 160,56,85,56,85,63,255,67,255,63,
255,1
2110 DATA 160
2120 REM CHORUS

A MUSICAL BONUS (FOR THE CURIOUS)

The nice thing about this program is that it can play just about any tune you want it to. If making music on your Apple interests you, here are some numbers you can experiment with to produce your own songs. Type them into data statements, alternating a pitch, then a duration. For example, if you want a middle C whole note and a G half note, you would type DATA 94,255,63,127. Good luck and happy plinking.



NOTE TABLE

NOTE	PITCH	NOTE	PITCH	NOTE	PITCH
LOW C	188	C	94	C	47 HIGH
C#	179	C#	90	C#	44
D	171	D	84	D	41
D#	162	D#	79	D#	39
E	154	E	75	E	37
F	144	F	71		
F#	135	F#	67	REST	1
G	127	G	63		
G#	119	G#	59		
A	112	A	56		
A#	106	A#	53		
B	100	B	50		

(DURATION RANGE: 1-255)

HARDWARE REVIEW



The greatest revolution in computer printers is about to hit Australia in a very big way. The key word is laser. The new laser printers are better, faster, and quieter than anything else currently available. It is very likely that in the not-too-distant future they will be cheaper as well.

At the time that this article was written, Apple had not announced the precise details of their new laser to the adorati who flock to their annual general meeting. But enough is known about it so that the only surprises are going to be in the final details.

The machine is built by Canon, who also make similar machines for a host of other computer companies.

Lasers are going to play a major part in printers and in computing – especially for Apples, because they will both be part of an astounding new disk technology, the "Encyclopaedia Britannica" on a single disk in a drive costing less than \$1,000.

Non-impact

Laser printing is non-impact. That is, instead of the letters being stamped onto paper, as is the case with the typewriter and most dot matrix and daisy wheel printers, the lettering is achieved with no impact or even contact between the printing head and the paper.

With a laser the picture is produced through a totally different technology from that used with other forms of printing. The image to be printed is scanned at high speed onto the paper in much the same way that an image is directed to a television screen.

Lasers work through a combination of laser technology and photocopying techniques. It is no accident that the first true laser printer came from Xerox, who probably have as much experience in photocopying techniques as anyone in the world. The

The lasers are coming, the lasers are coming

by Gareth Powell

first machine came in the mid-1970s and cost a fairly substantial amount of money – as in \$20,000. Nevertheless, it was possible to see then what a dramatic effect laser printers would have on the computer market.

Almost all laser printers are now solid state machines. They produce a marginally less sharp picture than gas laser techniques. But on the other hand they are much cheaper to produce and inherently more reliable.

How they work

Laser beams (the name is an acronym for Light Amplified by Stimulated Emission of Radiation) work, roughly, as follows.

An electrical discharge is sent through a gallium arsenide crystal (worth noting that gallium arsenide may eventually replace silicon as the base material for complex chips). The electric charge excites the atoms to energy states higher than normal. As the atoms start to revert to their normal lower energy state, they emit light.

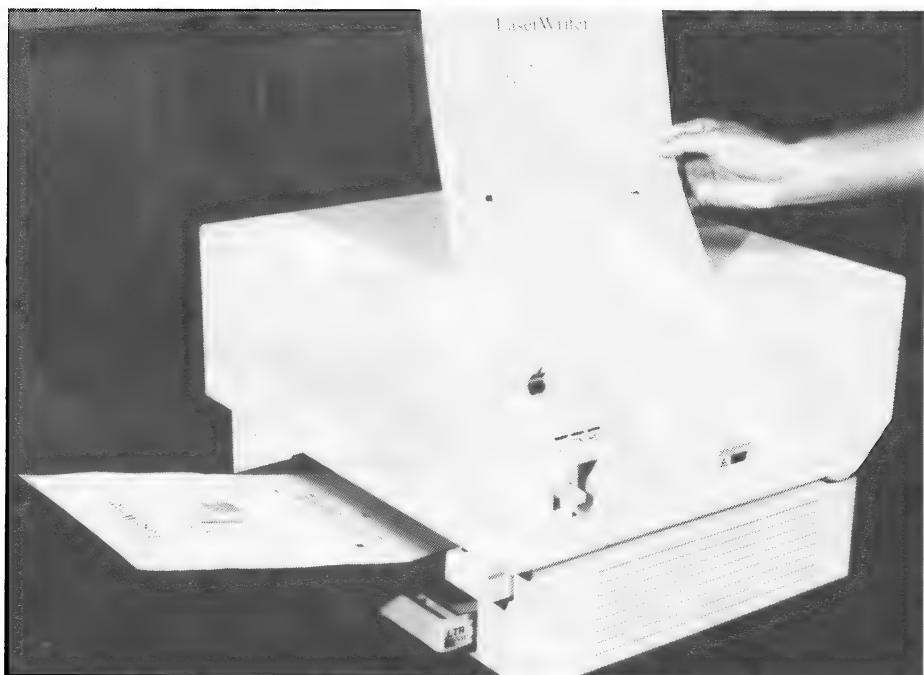
Once one atom spontaneously emits light, other neighbouring atoms which are still in a state of high energy want to get in on the act. They are stimulated to send out light on the same wavelength.

This all sounds a bit technical, but the end result is a beam of light on a single wavelength – light that is coherent. Normal, "incoherent", light spreads as soon as it leaves the light source. Coherent light stays together in a narrow beam.

Coherent beam

In theory, if you beamed a laser light to the moon, the spot of light it would create would be exactly the same size in diameter as when it left the laser on earth. This is the theory. In practice there is a slight divergence, but let us not split light beams.

This beam of light can be



switched on and off by a magnetic beam applied directly to the gallium arsenide crystal. The beam goes via a rotating polygon mirror which distributes the light to precise positions on an electroconductive drum. However, this mirror can, and frequently does, get the minuscule wobbles at high rotation, so it is sometimes necessary to correct the beam after it has bounced off the mirror. This correction is accomplished through a series of optical lenses before the beams end up on the surface of the photoconductive drum. These lenses refine, correct and focus the beam.

Experiments are being conducted to substitute a holograph scanner instead of the polygon mirror, and this will undoubtedly be the next breakthrough in laser printers. The breakthrough after that will be colour laser printers, which we will get to in a minute.

If you are still with me, we have a method of sending a beam of light with great accuracy and speed bouncing off a mirror.

Charged dots

The light reaches a rotating drum which changes in electrical conductivity depending on the amount of light that strikes it. The laser emits an infra-red light invisible to the naked eye and discharges rows of dots – the more dots, the finer the image.

Powder toner is sprayed on to the drum. The toner, which is almost exactly the same as that used in photocopying machines, has an electrical charge in opposition to the charge of the latent image that the laser has deposited on the drum.

As you will remember from high school science, like charges repel, opposite charges attract. And so the toner sticks to the latent image wherever the laser has left its mark – and leaves the rest of the drum clear.

Printed paper

Paper is then rolled on to the drum and the image is printed on the paper. This image is then given a



quick ironing to make sure it is permanent, while the drum gets an even faster clean to prepare it for the next page, the next set of images.

The result is an image which looks and feels exactly like the best photocopied documents.

The new Apple printers will have disposable drums and toners, and need a new cartridge about every 3,000 pages – about as cheap as using a high quality typewriter with carbon ribbons.

The point about these printers is that they can just as easily produce drawings and illustrations as they can type. And they can just as easily produce type faces as they can standard typewriting.

They can mix type of different styles and pictures on the same page. And they can produce high resolution graphics which put many a standard printing process to shame.

Typeetting

In theory, you could totally typeset this magazine, lay it out and have the pages prepared for the printers – without going near a typesetter or a paste-up artist.

First cab off the rank in Australia with a laser printer has been Hewlett Packard with their LaserJet, which is also basically a Canon machine. As mentioned earlier, Apple should be available by the time you read this copy.

As these laser machines will sell for only a little more than a good quality impact printer, there is no doubt that within three years they will totally dominate the market. Especially as they print at about 300 characters per second, which is eight pages a minute. And they do it in relative silence.

The technology involved in making this printer work is not a million miles from the technology used in litho colour printing. There is no doubt in my mind that we will see the first colour laser printers on the market within two years. When you combine that with the idea of computer created images, the mind starts to quietly boggle.

All we need now is for someone to invent an adequate substitute for paper and we will be living in a brave new printing world. Haste the day. □



by Gene Stephan

From this issue onwards you may find that the format of reviewing II+, IIe and IIc software/hardware is slightly different from before. Any such reviewed by myself will have either little apples or little cores at the end of all the words. This piece of symbolism was found necessary due to the publisher's (Gareth Powell's) belief that people who chain drink coffee and pop vitamins, not to mention wear beards, are incapable of "totally subjective reviews"! One could say...

So instead of numerical ratings, my reviews will end with from one to four of those items above. Discerning readers will know what to think.

EDD3 (Essential Data Duplicator)

Utilico Software, Bondi Beach.
Cost \$98.95.

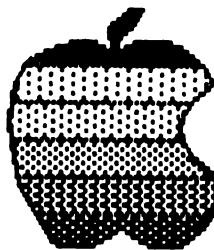
Software has made the Apple, and for all they say, the people at Apple must surely know that without the pirate their machine would not be where it is today. The mass of swappable software must affect their sales to a vast extent.

To most Apple users, piracy is an artistic challenge. If original protected software was made available for the cost of the disk and book, I have no doubt people would still try to copy! Do you have any copied software? I certainly do not!?

So it was with interest that I went down to chat with Dr Kramer, the man who distributes EDD3 in Australia.

Not knowing what to expect, I was still surprised to be ushered into a doctor's surgery by an enthusiastic gentleman more resembling your favourite uncle than the distributor of one of the most powerful copy programs around. And it did not take me long to find out that piracy is the farthest thing from his mind.

"I originally brought the program in from the US because I found it



impossible to back up some of my software. If something went, it would take weeks to get back a copy from the States." Okay, enough about the morals – let's look at the program.

In a word, it works. More than that, it works very, very well and is easy to use.

When Dr Kramer gave me a copy to test, I couldn't wait to get home to try it out on some of my originals I had wanted to back up for a while. With the help of extensive parameter sheets, the program went through its paces almost like a breeze.

I say "almost" because I am one of those funny people who have a habit of putting their originals in DRIVE 1 and the blank in DRIVE 2. EDD3 defaults to, you guessed it, original in 2 and blank in 1. Horrors for the unsuspecting! But wait – EDD3 looks at the drive which should have the original and tells you if it is not write protected – so you need not wipe your good disk inadvertently. I have done just this with the Disk Muncher – silly me.

The manual runs to over 40 pages of how-to, background and tips and so is reasonable reading by itself. The parameter sheets list around 500 programs, and Utilico have the policy of sending updates every couple of months – providing you send them a couple of dollars and a self addressed envelope for each update.

More importantly, support is here in Australia and need only be a call away. The phone number and address are in the Utilico advertisement for all to see and use. In fact any Australian/NZ queries directed to the States are re-routed back and dealt with by Dr Kramer.

So how can I finish up except to say that it is an excellent program ... but looking through the parameter sheets did not help me to back up my copy of EDD3, so I guess there are some programs it cannot copy (easily).



TIPS & TECHNIQUES

- **PROGRAM AND HI-RES MEMORY CONFLICTS**

The easiest way to use Hi-Res graphics with a long Applesoft program is to relocate the program. This way you avoid the problems of program text and variables being stored in the Hi-Res buffers. The following programs will initialize the Apple's memory and RUN your application program. The program will load above the Hi-Res buffer. DOS and CHAIN will continue to load programs there until the system is re-booted or a FF command is executed.

For HGR

```
10 POKE 103,1
20 POKE 104,64
30 POKE 16384,0
40 PRINT CHR$(4); "RUN program"
```

For HGR2 or both pages

```
10 POKE 103,1
20 POKE 104,96
30 POKE 24576,0
40 PRINT CHR$(4); "RUN program"
```

- **TRACE AND DOS COMMANDS**

TRACE won't work with DOS commands unless you define D\$ = CHR\$(13 + CHR\$(4)) because DOS expects the control-D to be the first character on a line of output and TRACE does not send out a RETURN.

- **DISABLING RESET**

The Auto Start Monitor ROM allows the application program to retain control when the RESET key is pressed. The easiest way to take advantage of this is to reset re-run in the Applesoft program.

```
10 POKE 1010,102 : POKE 1011,213 : CALL -1169
20 REM
30 REM          RESET WILL RE-RUN THE PROGRAM NOW
40 REM
100 POKE 1010,191 : POKE 1011,157 : CALL -1169
110 REM
120 REM          THIS IS BACK TO NORMAL
```

- **SYNTAX ERROR WHEN THE PROGRAM IS RUN**

Applesoft requires that the first byte in the program storage area is a zero. Some machine language programs don't leave a zero there and Applesoft may react strangely. Here's how to initialize that byte, even if the program memory pointer has been changed.

```
POKE PEEK (103) + PEEK (104) * 256,0
```

- **GARBAGE COLLECTION**

If your Applesoft program sometimes mysteriously stops for up to five minutes in the middle of a program and then just as mysteriously resumes as if nothing had happened, then read on. When Applesoft re-assigns a string value it assigns the new value just below the last one. Soon all of the free memory is full of old strings that aren't being used. When there's no room for one more string then Applesoft sorts through all of its strings, one at a time, and throws out any unused ones. This is called Garbage Collection and it can last up to

Can you be Ruth and a loving parent

There are many ways for you to be more competitive in the way that you go about your business. (The faint-hearted would call some of these ploys ruthless.)

But there is one way that allows you to improve your business efficiency, and give your kids a head start at the same time.

It's the new Apple IIc.

Apple IIc. The 8 pound heavyweight.

For such a powerful, capable machine, the Apple IIc is extremely compact.

The new Apple weighs just less than 8 pounds, half as much as computers with half its power. It has been designed to be the same size as a 3-ring binder, not a 3-ring circus.

It has over 10,000 software programs written for it. With educational programs that graduate from Spelling to Acid-Based Chemistry.

And with business programs that range from Inventory Control to Sales Analysis.

Apple IIc. The perfect business partner.

When you take your Apple to work, you'll find there's an Apple program to help you keep records, manage finances and prepare, file and retrieve documents. There are many Apple programs written for specific use by people such as farmers, doctors, lawyers and accountants.

With an Apple printer you can easily turn screeds of information into graphs and charts in seconds, not in hours.

Should your office possess a mainframe computer, your Apple can connect into it.

Whether you're working directly with a mainframe program or transferring wads of information onto a program disk for your later use, you will soon see that having an Apple IIc on your desk is a lot smarter than having a dumb terminal.

In no time, your nights and weekends of being office bound, simply because the computer's there, are over.

Apple IIc. The perfect teacher.

When you take the Apple home you'll realise that a perfect, patient inspiring teacher is never far from hand.

After plugging the Apple into a normal television or an optional monitor, the first of 6 self-explanatory programs can be inserted into the built-in disk drive.

Young and old will very quickly realise how simple Apple has made it to master the personal computer.

And in no time at all, young people will find themselves at the door of one of the most unusual libraries ever assembled, the Apple software library.

Even though there are new programs written for the Apple every day, there are currently over 2000 education based programs available.

At their own pace, with the new found

less in business tat the same time?

concentration that a computer creates, your children can take themselves on a private tuition course that covers virtually every subject on the school curriculum.

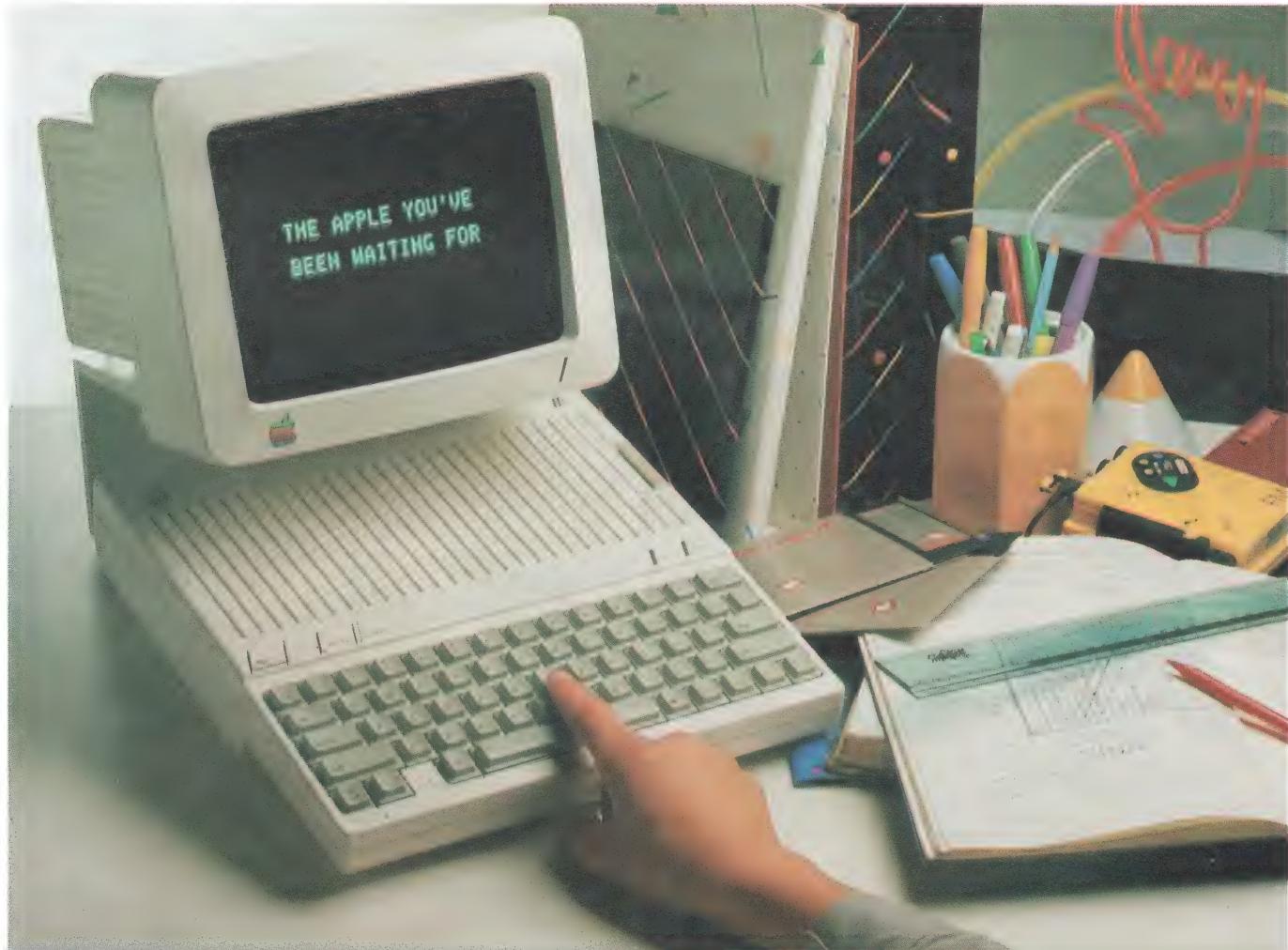
Whether they're learning to read music or a foreign language, your children will be enjoying the considerable advantages of a student to teacher ratio of 1 to 1.

Whatever the subject however, many people believe that familiarity alone with a

computer is going to be a tremendous advantage in the future of a young person growing up today.

Who knows, an Apple may give your kids such a head start, they may never even have to be ruthless in business.

For the address of your nearest Apple dealer, phone Sydney 908 9088 or toll-free (008) 221555.



TIPS & TECHNIQUES

- five minutes depending on how much memory is available and how many string variables there are. The more string variables there are the longer it will take. Applesoft gives no warning of garbage collection, it just does it and there is no way to prevent it.

- Applesoft also does garbage collection when it encounters the FRE(0) function, and this gives us a tool for at least warning the user that the computer will be busy for a while. Applesoft checks the value of PEEK(112) - PEEK(110) and when it is less than one, Applesoft does its garbage collecting. So we can check that value to decide when to print a "DON'T WORRY" message and then use A = FRE(0) to force garbage collection. Here is an example line you could use in your program.

```
1000 PEEK(112) - PEEK(110) = 2 THEN PRINT "STANDBY" : A = FRE(0)
```

OVERFLOW ERROR IN FIRST LINE OF PROGRAM

- If the first number in the first line of the first program run after booting DOS is a negative number then Applesoft might return an OVERFLOW ERROR. This usually occurs when the first statement is CALL -936 which can be replaced with HOME.

SAVING ROOM WHEN BSAVING HI-RES

- One sector can be saved on the disk for each Hi-Res screen that you save if you save it with a length of \$1FF8 instead of \$2000. The reason is that the starting address and length of the binary file are stored as the first 4 bytes of the file. Saving a file with a length of \$2000 actually stores \$2004 bytes and requires another sector. The syntax will now be:

```
10 D$ = CHR$(4)
100 PRINT D$;"BSAVE HIRES-1, A$2000, L$1FF8"
200 PRINT D$;"BSAVE HIRES-2, A$4000, L$1FF8"
```

BINARY FILE ADDRESS & LENGTH PARAMETERS

- The starting address and length of a binary file are loaded into two registers in memory when the file is loaded. Page 144 of the DOS Manual has the addresses to look at for this information. To find the starting address and length of the FID program on the master diskette:

```
BLOAD FID
PRINT "ADDRESS = "; PEEK(43634) + PEEK(43635) * 256
PRINT "LENGTH = "; PEEK(43616) + PEEK(43617) * 256
```

- which would return the starting address of 2051 and a length of 4686.

BRUN HELLO ?

- When DOS is booted it will "RUN" the program that was in memory when the diskette was initialized. You can change DOS so that it will "BRUN" the HELLO file instead. In a 48K Apple change the byte at \$9E42 from \$06 to \$34. The following sequence of commands will create a disk that will BRUN HELLO when it is next booted. First put a blank diskette in the drive.

TIPS & TECHNIQUES

- CALL -151
- 9E42:34
- 3DOG
- INIT HELLO
- DELETE HELLO
- BLOAD "binary program" (from another diskette)
- BSAVE HELLO (on the new diskette)

PEEKs POKEs & CALLs

If you ever have the misfortune to lose DOS while your program is running, go to the line number where DOS crashes and insert CALL 1002.

When outputing to your printer have you ever tried to HTAB or TAB() to a position greater than 39 ? Try POKE 36,(number).

- CALL -922 issue line feed
- CALL -912 scroll text 1 line
- CALL -868 clear from cursor to end of line
- CALL -875 clear entire text line
- CALL -384 INVERSE
- CALL -380 NORMAL
- CALL -211 print ERR & ring bell
- CALL -198 ring bell
- CALL -1205 set normal text window
- CALL -936 HOME
- PRINT (PEEK (978) + 35) / 4;"K" print memory size
- PRINT PEEK (222) print ONERR error code
- POKE 82,128 make cassettee prog. auto-RUN when loaded
- POKE 216,0 cancel ONERR
- POKE 1014,165 : POKE 1015,214 make "&" list
- POKE 2049,1 make first program line list repeatedly
- POKE 44505,234 : POKE 44506,234 show deleted file names in catalog
- POKE 50,(random number) scramble text output
- POKE 214,255 make disk program run when any command is issued

BASIC SUGGESTIONS

To center a printed message simply use a string variable and let the computer do the rest like so:

```
100 A$ = "APPLE-Q"  
110 PRINT SPC((40 - LEN(A$)) / 2); A$
```

Alternatively you can use

```
120 PRINT TAB((40 - LEN(A$)) / 2); A$
```

or you can use

```
130 HTAB ((40 - LEN(A$)) / 2); PRINT A$
```



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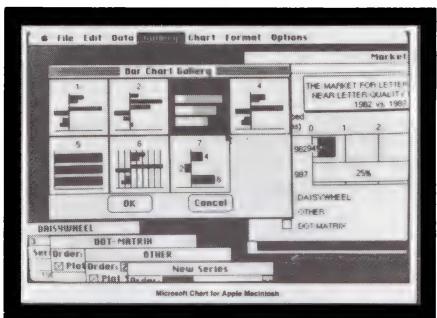
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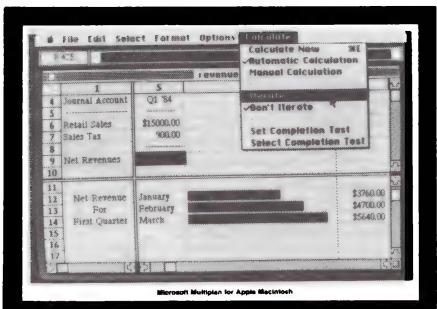
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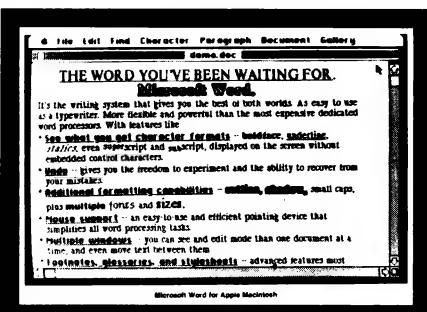
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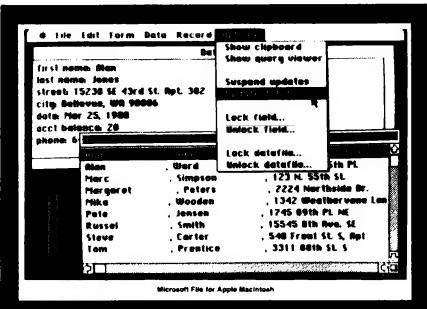
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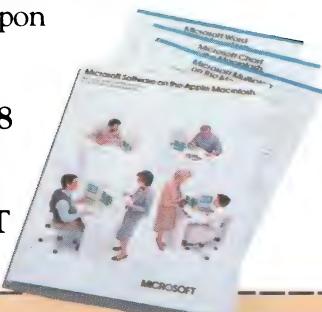


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TIPS & TECHNIQUES

APPLEMASH

Enter this program:

```
10 A = 1
20 PRINT A
30 A = A + .01
90 GOTO 20
```

Type RUN. Do you notice anything unusual, anything you didn't expect? Here is the Algorithm for two decimal places. Add it to the program.

```
40 A$ = STR$(A)
50 FOR J = 1 TO LEN(A$)
60 IF MID$(A$,J,1) = "." THEN 70
65 NEXT J
70 IF LEN(A$) = J + 2 THEN A$ = LEFT$(A$,J + 2)
80 A = VAL(A$)
90 GOTO 20
```

Would you like a list of CHR\$(N) printed for you to study? Here is a nice little program that will do it for you.

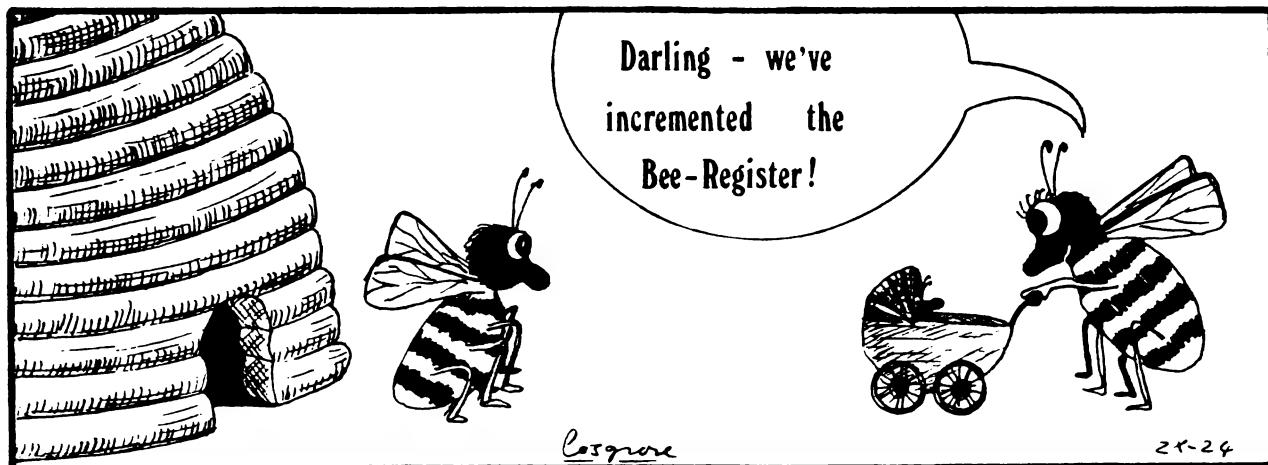
```
10 TEXT : HOME
20 C = 0
30 FOR N = 1 TO 255
40 C = C + 1
50 PRINT "# ";N;" = ";CHR$(N),
60 IF C = 60 THEN C = 0 : PRINT "ANY KEY" : GET AN$ : HOME
70 NEXT N
```

If you have a printer you can use this program to print these out so that you have a permanent hard copy to review at your leisure by adding lines 5 and 80:

```
5 D$ = CHR$(13) + CHR$(4) : PRINT D$;"PR#S"
80 PRINT D$;"PR#O"
```

I hope you find these routines of some use.

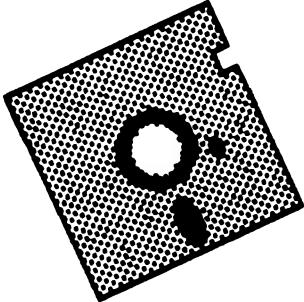
oooooooooooo



One-liners

Found in the mail this month were some "one-liners" (and some almost one liners). One-liners are programs that do everything they want to do - in one line. As such, these short programs lend themselves to modification.

Try them out to see what they can do and then start changing. In "Looney Lymericks", for instance, you can change the DATA statements in Lines 1000 to 1060 and re-define the strings in Lines 90 to 130. □



Program #1.

```
1 REM B. BURNS
10 A=RND (1) : B=RND (1) : P1 =
3.13159 = HOME : HGR : HCOLOR =
INT (RND(1)*7) : HPLOT' 140,
80 : FOR R = 0 TO 10 * PI : X = A
* 2 * R * COS(R) + 140 : Y =
B * 2 * R * SIN(R) + 80 ; HPLOT TO
X, Y : NEXT : GOTO 10
```

Program #2.

```
1 REM B. BURNS
10 LET A = 1 : HOME
20 ? : ? "PLEASE INPUT MESSAGE " :
INPUT DM$%
30 HOME : B = LEN (DM$)
40 VTAB 15
50 ? LEFT$ (DM$, 40)
60 C = C + A
70 IF (ABS (C) > 100) THEN A = - A
80 ON (C > 0) + 1 GOSUB 100, 200
90 FOR D = 1 TO 200 : NEXT
100 GOTO 40
110 DM$ = RIGHTS (DM$, 1) + LEFT$ (DM$,
B - 1)
120 RETURN
130 DM$ = RIGHTS (DM$, B - 1) + LEFT$ (DM$,
1)
140 RETURN
```

Program #3.

Program #4.

```
]PR#0
]LIST

1 REM ** WRITTEN BY G.BAILEY
2 REM ** CESSNOCK 2325, N.S.W.
10 DIM A$(29)
20 TEXT : HOME
30 FOR I = 1 TO 28
40 READ A$(I)
50 NEXT I
90 B$(1) = "THERE WAS A YOUNG MAN
FROM "
100 B$(2) = "WHO "
110 B$(3) = "HIS "
120 B$(4) = "ONE NIGHT AFTER DARK
"
130 B$(5) = "AND HE NEVER WORKED
OUT "
140 HOME :A = 0:B = 0
145 VTAB 10
150 A = A + 1
160 IF A = 6 THEN 900
170 PRINT B$(A);
180 B = B + 1
190 N = INT ( RND (1) * 4 ) + 1
200 W = 4 * (B - 1) + N
210 PRINT A$(W)
220 IF B = 3 OR B = 5 THEN 180
230 GOTO 150
900 VTAB 20: INVERSE : PRINT "<<
HIT ANY KEY >>": NORMAL : GET
A$: GOTO 140
1000 DATA "TASHKENT","TRENT","K
ENT","GHENT"
1010 DATA "WRAPPED UP","COVERED"
1020 DATA "PAINTED","FASTENED"
1030 DATA "HEAD","HAND","DOG","FOOT"
1040 DATA "IN A TENT","WITH CEM
ENT","WITH SOME SCENT","THAT
WAS BENT"
1050 DATA "IT RAN OFF","IT GLOW
ED","IT BLEW UP","IT TURNED
BLUE"
1060 DATA "IN THE PARK","LIKE A
QUARK","FOR A LARK","WITH A
BARK"
1070 DATA "WHERE IT WENT","IT'S
INTENT","WHY IT WENT","WHAT
IT MEANT"
]LIST

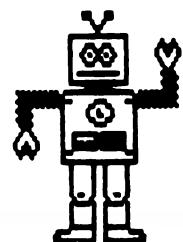
5 REM ** WRITTEN BY G.BAILEY
6 REM ** CESSNOCK 2325, N.S.W.
10 HGR2
20 PAGE = 2
25 R1 = INT ( RND (1) * 159 ) + 1
:R2 = INT ( RND (1) * 159 ) +
1: IF R2 < = R1 THEN 25
26 D1 = INT ( RND (1) * 39 ) + 1:
D2 = INT ( RND (1) * 39 ) +
1: IF D2 < = D1 THEN 26
27 RC = INT ( RND (1) * 255 ) + 1
30 FOR Y = R1 TO R2
40 A = INT (Y / 64):D = Y - 64 *
A:B = INT (D / 8):C = D - 8 *
B
50 LOC = 8192 * PAGE + 1024 * C +
128 * B + 40 * A
55 FOR D = D1 TO D2
60 POKE 49237,0
61 POKE LOC + D,RC
62 POKE 49236,0
63 POKE LOC + D,RC
65 NEXT D
70 NEXT Y
80 GOTO 25
```

```
]PR#0
]LIST

10 REM ** WRITTEN BY G.BAILEY
11 REM ** CESSNOCK 2325, N.S.W.
20 GR
30 FOR A = 1 TO 255 STEP 2: POKE
48,A
40 FOR I = 0 TO 39: HLIN 0,39 AT
I: VLIN 0,39 AT I: NEXT
50 A = A - 1: POKE 48,A
60 FOR I = 39 TO 0 STEP - 1: HLIN
0,39 AT I: VLIN 0,39 AT I
70 NEXT : NEXT
```

```
]LIST

1 REM .THIS PROGRAM REQUIRES A
2 REM //e WITH REVISION 'B' OR
3 REM .LATER MOTHERBOARD AND AN
4 REM .EXTENDED 80-COL CARD
5 REM ** WRITTEN BY G.BAILEY
6 REM ** CESSNOCK 2325, N.S.W.
7 PRINT CHR$ (4); "PR#3": PRINT
CHR$ (12)
10 POKE 49154,0: POKE 49156,0: POKE
49153,0: POKE 49239,0: POKE
49160,0: POKE 49246,0: POKE
49232,0: POKE 49165,0: HGR :
POKE 49237,0: CALL 62450
20 PAGE = 1
25 R1 = INT ( RND (1) * 159 ) + 1
:R2 = INT ( RND (1) * 159 ) +
1: IF R2 < = R1 THEN 25
26 D1 = INT ( RND (1) * 39 ) + 1:
D2 = INT ( RND (1) * 39 ) +
1: IF D2 < = D1 THEN 26
27 RC = INT ( RND (1) * 255 ) + 1
30 FOR Y = R1 TO R2
40 A = INT (Y / 64):D = Y - 64 *
A:B = INT (D / 8):C = D - 8 *
B
50 LOC = 8192 * PAGE + 1024 * C +
128 * B + 40 * A
55 FOR D = D1 TO D2
60 POKE 49237,0
61 POKE LOC + D,RC
62 POKE 49236,0
63 POKE LOC + D,RC
65 NEXT D
70 NEXT Y
80 GOTO 25
```





Computer shall speak peace unto

by Gareth Powell

First, a confession. Some weeks ago I wrote an article in the "Sydney Morning Herald" in which I queried the marketing honesty of Apple in calling the Apple modem a 300/1200 modem when it only worked at 300 baud.

Before my friends at Nettcomm arise in righteous wrath and strike me hip and thigh, let me explain that it is all a mistake.

I was assured, incorrectly, that I could only use 300 baud and wrote the article in good faith. I sent the preliminary article through the modem to the newspaper offices.

Then I checked my facts and found that, in fact, Apple were not telling a lot of porkies and that the 300/1200 modem will operate at both 300 and 1200 baud, although in the second case at 1200/75.

Quick as a flash I sent down a correction through an acoustic coupler modem for which, out of interest, Nettcomm had made me a cable free of charge.

Shock, horror and shame but the message simply didn't get there, and when I returned from Hong Kong there, to my horror was the original article uncorrected.

My apologies to all concerned and a correction will be appearing in the Herald in the very near future.

Splendid machine

The 300/1200 modem is indeed a splendid machine, and at the moment I have it connected to my Apple IIe and use it to talk to the Source, the Sydney Morning Herald and Hong Kong – not necessarily in that order.

On the IIe it is embarrassingly easy to use.

The book of instructions is totally legible and, considering the complexity of the subject, relatively easy to follow.

Important notices are prominently displayed in grey shaded areas and even blind Freddie couldn't miss them. But just in case, they put a sort of road

warning triangle at the side of the grey square.

This system of attracting attention was tested on the lowest level of available reading intelligence the author could find and the senior management of Apple passed the test with flying colours.

The documentation is as foolproof as it could be.

The modem is the first internal modem ever approved by Telecom and it is auto dial and auto answer.

Up and running

All you need to be up and running is an Apple, preferably with 64K of memory, a disk drive, a monitor and a printer if you need hard copy. Plus you must have a serial interface card. I use a CCS card which I have had for yonks, but NetComm make one called, with remorseless logic, DataNetComm Communications Card.

You will also need a communications program.

On my standard set-up I normally use Terminapple by the amazing Paul Zabrs which answers all of my many problems. More on that later.

Possibly even easier to use in this particular instance is the software specially written by NetComm to allow you to connect with an IBM mainframe, their standard A/Synch2 terminal program or, relatively new this one, their Prestel program.

The modem card has its own on-chip Random Access Memory and EPROM storage which is used to allow the modem to respond to messages from whatever source, telling it how to configure itself. The microprocessor also handles the control of the auto dialling, auto answering and auto connection.

Connections

The card normally fits in Slot 4, and you connect it the RS232 cable into the socket on your serial communications card which is normally in slot 2.

The Telecom connector goes direct into a standard socket. This leaves you with a spare telephone, as NetComm very considerably supply you with a rather snazzy telephone as part of the kit.

I tested mine by sending a frivolous message to David Harvey at the Herald. I then tested it with all my little mates around Australia and it worked marvellously.

Then came the big time. I have an office in Hong Kong where I produce this and that for companies in Asia. Heretofore we have used the electric telephone and telex to keep in contact.

We had a NetComm modem each end and tried zapping messages back and forth. It took some small tweaking but soon we were in contact and we can now send a day's diary every day and not worry unduly about the cost.

Now a small amount of background information before more marvels are revealed.

World standards

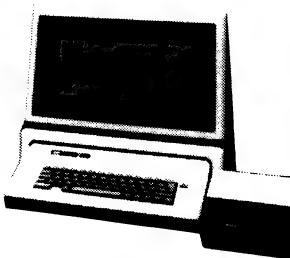
There is a standing committee called the CCITT which tries its damnedest to keep world standards in communication so that one nation can speak peace to the other.

The United States and Canada both are members of this august organisation, but take no notice of the rules and set their own standards. Therefore internationally for computer communication you are looking at two standards – Bell (US and Canada) and CCITT (the rest of the world).

Normally these two systems are mutually exclusive and never the twain shall meet. In fact, you can occasionally break a 1200 baud connection between the two systems – but not often.

What NetComm have done is arrange their modem so that it can be all things to all men. There is a set of miniature switches (you will find a toothpick is the ideal switching lever) which allow you to choose not only

computer



CCITT at both speeds, but likewise Bell at both speeds, as well as Prestel, which will be released on the unsuspecting Australian public in February.

So that you can see what is going on at any time, there is a set of light emitting diodes on the front of the extremely attractive box which tell you exactly what your modem is doing.

Complex instructions

In truth, setting up the modem to give you exactly what you want is not as easy as falling off a log. Considering the total bog-up in international communications this is hardly surprising. But NettComm have really tried to make it as painless as possible.

Disk menu

There is a disk which you boot which sets up a menu as follows:

1. READ CURRENT PARAMETERS
2. READ DEFAULT PARAMETERS
3. CHANGE MODEM PARAMETERS
4. SET ANSWER MODE
5. SET ORIGINATE MODE
6. QUIT

If you select 3 you get a second menu which lists all the options open to you.

1. BELL 300 BD FULL DUPLEX ORIGINATE
2. BELL 300 BD FULL DUPLEX ANSWER
3. V21 300 BD FULL DUPLEX ORIGINATE
4. V21 300 BD FULL DUPLEX ANSWER
5. BELL 202 1200 HALF DUPLEX SYNCH
6. BELL 202 1200 HALF DUPLEX EQUAL
7. V23 1200 HALF DUPLEX SYNCH
8. V23 1200 HALF DUPLEX EQUAL
9. VIDEOTEXT 1200/75
10. VIDEOTEXT 1200/75 EQUALISED

Even I could work out what I wanted from that little lot.

In the next few issues we are going to start concentrating very heavily on communications because we believe that it is, indeed, the way of the future.

Any reader who has had a fair amount of experience in this area and would like to contribute is earnestly requested to drop us a line.

□

A computer is a useful tool. It can write, remember, calculate, draw diagrams, deduce logical answers – normally far faster and better than a human can. But if that is all you are using your Apple for, you are only using half – less than half – of its capacity. Because the personal computer is the greatest communication tool in the world.

With it you can obtain information that is certainly not available in your local library. With it you can communicate with other computer enthusiasts all over the world.

You can get the answer to almost any question you care to ask, if you know exactly where to look.

None of this is overly difficult.
None of it expensive.

None of it hard to operate. All it needs is a computer, a modem, some software – and a certain amount of common sense.

Once you have been hooked up to the rest of the modern world through your Apple, you will find that its uses and worth multiply many times over.

By adding a modem to your Apple it becomes a gateway to a rapidly expanding world of information networks.

Many of them are in Australia, thousands are out there in the world beyond. Some of the networks are small, local and free. Some of them are international and relatively expensive. They all exist to communicate, to provide information, to act as message boards, to widen the scope of the electronic world.

The telephone is the ideal communication channel for the Apple. Almost everyone has one. The networking system is already in place. Although the telephone was originally designed to carry voices – analogue transmission if you want to be technical – modifying it so that it will carry information between Apples – data in digital form – is not difficult.

If you have an Apple and you do not have a modem then you are only using a very small amount of the power and the pleasure available to you.

Hey, dad! Didn't you say these disks were magnetic?



What lies in the Future ?

There is a whole industry in the United States which consists of experts keeping companies under a microscope and trying to guess what they will do next. Murphy's Law being what it is, they often guess totally wrong, but they are still able to give some indications of which way the cat will jump.

I've become a sort of Apple Polisher, because it is of the greatest interest to me to try to work out what Apple as a company will do at any given time. Interest is probably the wrong word. Obsession is more like it.

First, some basic thoughts:

It is no good working on the basis that because Apple is now one of the major corporations of the United States, all the decisions they make will be rational ones.

It just doesn't work out that way.

Apple as a company is completely schizophrenic, which means that it has two completely separate personalities. In a peculiar way those two personalities follow the pattern set by the two original founders, Wozniak and Jobs.

True eccentric

It will, I trust, not be taken in the wrong way when I say that Wozniak is eccentric to the point of almost being English.

His is a pure, undistilled genius, and anyone who does not believe it should go back and look at the original design for the Apple motherboard and also at the disk operating system.

Both designed by Wozniak almost solo.

Both designs way beyond normal concepts of design.

And Wozniak, as does any genius and eccentric, has moments when he behaves as if he is three sandwiches short of a picnic.

Nothing in itself wrong with that. Do it all the time myself. Just wish I had the genius to go with it.

Corporate America

Jobs on the other hand moves gradually towards a position where he represents corporate America. (Yes, it is true that John Sculley is the real corporate American at Apple, but that is not what I am driving at.)

Steve Jobs gets photographed in a suit, is involved in the direction of the company, interferes in projects.

Again, there is nothing wrong in itself with that.

If you co-founded a company and you were Chairman, why shouldn't you keep an eye on what is happening up at the mill?

Listen to Brian Howard, one of the Macintosh designers, on the subject of Steve Jobs.

"Jobs definitely loves to be in on new projects when they get going, and he's not very able to just sit back and watch that happen. He's a very forceful person who has to get in and exert his influence."

But even Steve Jobs has two sides to his character.

When it was suggested that the Macintosh happened by accident, Howard again said, "That is the kind of thing that Steve Jobs will go out on a limb for."

OK. So now we've got these two personalities.

One a genius and eccentric.

The other corporate America, very forceful but still willing to stick his neck out for something he believes in.

Now wrap those two personalities together and stir in a fair measure of intellectual arrogance, and you have the complex structure that is the Apple Corporation in America.

That is my theory and I am sticking to it.

Extra quirks

There are a couple of extra quirks to take into consideration.

John Sculley - he of Pepsi Cola fame and the man that runs the joint

- believes that the company has got to be kept as lean and as taut as a slightly underfed greyhound.

While he is never averse to rattling the financial tin where he thinks some good old-fashioned marketing will bring results, he does not believe that Apple needs more staff to do it.

When in doubt hire outside experts on a temporary basis.

As a result Apple, as far as I have been able to ascertain, has a greater profitability per employee than any other computer company in the world.

Sculley intends to keep it that way.

Having sorted out that little lot - a company's psychological profile as it were - the number of directions that Apple can travel become restricted to a few. Because for it to go in certain directions would be totally and absolutely out of character.

Predictions

Now for some real predictions.

Apple are better at high level hype than almost any other company, but despite what they have said, the Macintosh was not the astounding success in its early days that they projected.

Indeed, at one time its future looked something less than totally assured.

Now it has carved a place permanently in the marketplace because:

a) it got a half megabyte memory, without which it was something less than totally effective, and

b) a large slew of software turned up to supplement the two programs with which the Macintosh was launched.

Because of its configuration there are several directions open for the Macintosh.

Some are fairly dead set certainties.

For example, some time next year the machine will be provided with a composite video outlet.

Why?

Because it won't cost much. It will make marketing very happy. It will increase sales of the Scribe, Apple's four colour printer. And it will be something to tell the stockholders at their annual meeting.

Second disk drive

And sometime next year a second disk drive will be added integral to the machine. As a single disk drive machine the Macintosh is hardly defensible.

All those at Apple headquarters who say it is not physically possible can line up with those who said Wozniak couldn't design a motherboard with all the connections on one side. It is, indeed, physically impossible to do so. As no one had informed Wozniak of the fact he went ahead and designed it anyway.

Will the second disk drive be a duplicate of the first?

I doubt it.

As Apple has strong connections in Japan with Sony and Canon, I would not be at all surprised to see a laser disk holding, say, 220 megabytes, being fitted into the Macintosh as a second disk drive. And before you all fall about laughing, know that I have recently returned from Tokyo and I have good reason to believe that this is now feasible because I have used the damned thing.

The Canon laser printer under the Apple label is going to give a new life to MacWrite and MacPaint. But as its resolution potential is far greater than the Mac's bit-mapped screen, we are either going to see a change in the bit map (which I doubt), or we are going to see some extremely cunning programs which show you one bit mapped image on the screen and produce a far finer one on the printer.

Indeed, it is no secret that the amazing William Gates III considers this is one direction to travel in if you are looking to make a laser into a typesetting machine.

New screens

If all of that happens – and I am sure it will – then the physical size of the Mac screen will start to limit the possibilities of its use.

Moving somewhat into the wild blue yonder, I can see a version of the Mac, still retaining the small

footprint on the desk, but having the screen stretched out to Cinemascope proportions. I've tried to visualise this mentally, and I do believe it would look rather handsome.

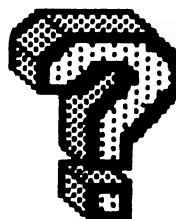
When the Mac was originally conceived it was part of a drive to achieve what Steve Jobs has always referred to as a Dynabook.

The Dynabook is in concept a small compact computer which you can carry like a book, but has a flat screen, a reasonable keyboard and a substantial memory.

Not a toy, not a portable word processing machine, but a portable personal computer in the full sense of that word.

And I believe that Apple already have such a machine working in prototype. What is stuffing them around is the absence of a reasonable flat screen.

Bear in mind that we have been hearing announcements of a flat 24 line 80 column Liquid Crystal Display screen for the IIe for some time and it still has not appeared.



The reason may well be that Hitachi have produced such a screen and it is quite terrible.

My guess – based on some evidence – is that Apple will never release that promised LCD screen, but will use electroluminescence which, while costing more, is not going to make Apple appear to be satisfied with second best.

It is fairly widely reported that Apple have been on the hunt for these screens, with quantities of 50,000 a month being quoted.

Which fits right in with my theory.

If this is true then the screen on the Dynabook will be electroluminescent as well.

Goodies for the admirers

If the Dynabook is not announced at the stockholders' meeting in January – a time when Apple likes to present its new goodies to the admirers – then we may not see it in

its final version for a year from that date.

But I am sure we will see it. When we do, it will be as revolutionary a computer as the Apple II was in its day.

The Apple IIe will continue to sell like crazy despite Apple's marketing department's disdain.

Marketing departments were ever thus.

Show them something new and unproven and they are as happy as pigs in swill.

Ask them to continue to sell a well proven product that works without any hitches and they sulk and complain that this is not creative marketing.

But the Apple IIe, when it is available, continues to sell, and I am sure it will be made in one form or another right until the end of this decade. I am not looking into my crystal ball when I say that Apple will produce a Chinese version. I know they will because they have told me so. And they will also produce a Japanese version of the Macintosh, but not in the time scale that they suggested.

Missing machine

If you look carefully at the Apple range, you realise that the disappearance of the Apple III has left a large hole in the middle which cannot be filled by the Mac or Lisa family, nor yet by the IIs.

And this is where the personality of the company comes in.

In theory, Apple Computers will say, there are a lot of businessmen out there who believe the Apple computer is the best computer on the market and if Apple produce a business computer they will buy it. So Apple will build such a computer, which will have learned from all the problems of the III and will use many of the techniques used with the Macintosh and will sell 2,000,000 in the first three months.

This is because, they will reason with themselves, a large number of small businessmen use the Apple IIe. They would like something more powerful but realise that the Lisa is more for academics than small businesses and that the Mac, as it stands, is simply not quite powerful enough.



And will Apple follow this logical thought process and build such a machine, which would bring the latest technology to the small to medium business at an affordable price and in a manner that could be easily understood?

No, Apple will not.

Because it suffers as a company from schizophrenia and it cannot make up its mind whether it is a laid back, California dreamin', none-of-that-corporate bullshit, isn't it swell we're all geniuses, company or whether it is part of corporate America.

What it is damned sure it is not is a small business company, and it simply will not make computers for small to medium sized companies.

You may think this is a form of arrant snobbery.

And you would be right.

Overhauling the Lisa

What Apple will do is take the Lisa and give it a major overhaul, because it is now beginning to show signs of age. And Apple is currently not into age.

Watch for a massive memory upgrade on the Lisa.

I would not be surprised at a Random Access Memory of 10 Megabytes or more. Plus a laser disk with one Gigabyte as standard. And a composite video producing colour to the standard of, say, Harry Garland's Cromemco. With it a colour printer that will print to a standard currently undreamed of, but say exceeding "National Geographic" in sharpness and colour tones.

The whole 32 bit line will then have a mad logic about it, because it will start with a standard Macintosh with half a Megabyte in Random

Access Memory (the original smaller RAM version will cease production from lack of customer interest). Followed by a Macintosh with an enlarged screen and a composite video output. Followed by a fairly standard floppy disk Lisa but with double capacity on the Sony 3.5 inch drives. Followed by a super Lisa with a massive RAM capacity and an even more massive laser disk giving one Gigabyte which will last the average user for years.

Acquisition trail

The final point to consider is that Apple is shortly going to become a cash heavy company.

Which is no bad thing.

But American stockholders are greedy swine and always want more.

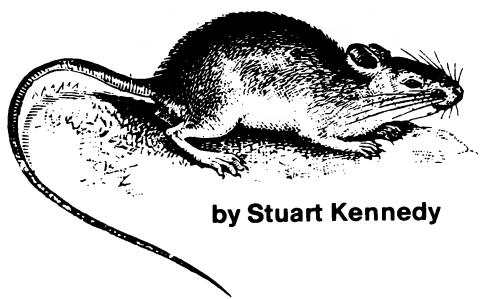
Therefore I think that Sculley will simply be forced to go on the acquisition trail to put that money to good use.

The logical place for him to start would be Xerox at Palo Alto, where many of the ideas incorporated into Apple have originated from.

Certainly in the United States there are enough companies with technical brilliance and scientific knowhow who are starved for cash and who would run, not walk, into the Apple fold.

Trying to guess which one it will be is now becoming a minor obsession with me.

Any suggestions welcomed. Any denials from Apple ignored. When you think of some of the things they have denied in the past, how can we ever believe them again? □



by Stuart Kennedy

Apple created a lot of interest in the micro world when they released the Lisa and Macintosh computers with their bit mapped screens, icons, pull down menus and mice. The mouse sprang from its customary position scurrying around the edges of kitchens to become a fashionable computer industry buzzword.

The primary purpose of the mouse is to act as a pointing device for basic computer functions, like opening and closing a file, freeing the user from having to remember and enter complex and often cryptic control strings on the keyboard.

Apple has now released a version of the mouse for the venerable Apple II series of micros. The hope being that along with the release of the new disk operating system PRODOS and the semi portable IIc, it will give the Apple II line a new lease of commercial life.

What you get

The IIe/II+ mouse retails at \$245. For this you get the mouse, an instruction manual, a Mouse firmware card, a clamp to retain the two plug female connector on the back of the computer's case and a copy of the Mousepaint graphics program. The IIc version, which retails at \$145, comes without the firmware card as the IIc already has the mouse ROM routines and connection socket built in. Installation is straightforward: on a IIe or II+, ease the firmware card into a spare slot (slot 4 is recommended), fix the mouse socket clamp to the back of the case (you'll need a small Phillips head screwdriver) and plug the mouse's tail into it. With a IIc you simply plug the mouse into the built-in socket.

Hardware

The mouse is a single button model similar to the one supplied

Apple II Mouse Review

with the Macintosh. It is best used on a surface with gentle friction, like a large desk blotter. The mouse operates much like an upside down trackball. An optical sensor detects movement in the ball on the underside of the mouse.

The connection cord has sufficient length to supply a wide range of movement; if you run out of room simply lift the mouse up and bring it closer, as the generation of relative movement coordinates is dependent on rotation of the ball. The mouse can be opened for cleaning by rotating a clamp ring on its underside.

Firmware

The mouse firmware contains routines to initialise the mouse, read its position and the status of the button and generate interrupts. An interrupt can occur with movement of the mouse, pressing of the button and during the video screen refresh cycle (handy for updating screen cursor positions without flicker). These routines require a working knowledge of 6502 machine language to be used effectively.

If you have visions of purchasing a mouse and programming your Apple II to work like a poor man's Macintosh, then get set for plenty of long evenings with a 6502 programming manual on your knees. To have icons and text on the screen at the same time requires the use of the hi-res graphics pages and a character set in software. You will also need to implement windows and an hi-res cursor. Good luck.

The mouse can be activated from BASIC by the PR# command, position and button status can be read by successive IN# commands.

Software

Mousepaint is the only piece of bundled software with the mouse. No

backup disk is supplied, but as the disk is not copy protected the user is free to make his/her own.

Written by Bill Budge of Apple arcade game fame and based on Macpaint, it is a showcase of what can be done with the mouse (given extensive programming) as well as being a fairly useful graphics editor. Mousepaint operates under the new PRODOS operating system, which offers significantly faster saving and loading times compared with DOS 3.3. This is especially evident when loading binary picture files.

When the program signs on, you have the choice of going straight to Mousepaint or doing a tutorial which gives practice in pulling down menus, "clicking" on icons and "dragging" objects around.

Once in Mousepaint, the user is presented with a screen layout similar to Macpaint. For instance, to save a picture to disk, you move the cursor via the mouse to the FILE menu bar at the top of the screen. Pressing the mouse button and holding it down causes a menu window to drop. To select an item from the menu, keep the button held down while "dragging" the mouse through the various menu items; these change to inverse as the cursor rolls past them. When you come to the PUT AWAY PICTURE option, releasing the button activates it. Similarly, to start drawing, point the cursor at the pencil icon, click the button to select it and move back onto the "page" to draw. All this is far easier to do than explain.

The left hand edge of the screen contains icons which symbolise the graphics tools available. There is a pencil, a paintbrush with sixteen different brushes, an airbrush for shading, a text icon which enables you to label pictures using five different character fonts, and shape icons which produce boxes, circles, polygons and irregular shapes.



The bottom edge of the screen contains different shading patterns ranging from black to clear. These operate with the shape and line functions.

An editing box allows parts of pictures to be altered. Once enclosed in the box you can move, delete, or cut and paste a section of the picture. You can also exclusive OR the section ("on" dots switch "off" and vice versa) and flip it horizontally or vertically.

The editing box also works with a fine detail function called "Fat Bits" which provides a blow up of a small section of the picture. The area to be detailed must first be "cut" and moved to the top left hand corner of the page. When "Fat Bits" is selected from the OPTION menu this area lets you see how any changes made look in normal scale. The rest of the page shows the area with its dots enlarged. All the picture drawing tools work as normal albeit on a large scale. The problem with "Fat Bits" is that when the normal page is selected you have to reposition the edited area back into the picture, which required a steady hand.

Dislikes

Mousepaint has some annoying omissions. There is no way of reading a disk directory from within the program. In fact the manual advises writing down the names of all picture files on the diskette jacket. What are computers for? Surely it would have been relatively simple to implement a directory loading routine.

Only whole screens can be saved to disk. This means you can't build up a library of frequently used shapes and paste them into a picture at will. A new picture has to be drawn from scratch if it bears no relation to another complete one.

The program offers a print picture option which only works with an

Apple Imagewriter or Scribe printer. There are two ways around this: one is to rewrite the printer driver routine to suit your particular printer and printer card, the other is to exit Mousepaint, boot a PRODOS system master disk, BLOAD the picture file and then do a dump of graphics page one.

Documentation

The mouse comes with a 56 page manual, the bulk of which is taken up with detailing the operation of Mousepaint. There is a short, too short in my opinion, section on programming the mouse from BASIC and a reasonably comprehensive guide to the mouse firmware routines for the machine code programmer. The manual is written in the lucid style of most Apple documentation.

Conclusion

Is the Apple II mouse a good thing or, at \$245 a throw for the IIe/II+ version, an expensive gimmick? I think it is a bit late in the day for the mouse to be seen as a serious hardware addition to the Apple II, which was designed when men were men and mice ate cheese. It is now almost a year since the mouse's release and commercial software support for it is still thin on the ground. Even Appleworks, Apple's recently released spreadsheet/database/wordprocessor, doesn't acknowledge the presence of the mouse. The rationale I have heard for this is that Appleworks is aimed at the "serious" business user. Are business people afraid of mice?

Used as a graphics editor with Mousepaint the mouse is good fun, but I think a user would be better served with a digitising pad such as the Koala Pad or the Powerpad. These offer a more natural drawing style as well as the option of tracing pictures. On a Mac or a Lisa, where it has been part of the design philosophy from the ground up, the mouse makes good sense. On an Apple II, unless there is a dramatic turnaround in software support, the mouse is a rather expensive pet. □

Bits 'n Pieces

Watch out

■ Mr P. Webb has found an irritating problem regarding his IIe with Appleworks and a Brother HR15 printer. It seems the printer will not work as it should no matter how loudly you speak to it, and changing switch settings does not help either.

This highlights the incorrect practice of assuming that the person over the counter necessarily knows what he/she is talking about. Apples and Brothers do work together, but make sure you see it all happening before you hand over your dollars!

Chess

Interested in "How About a Nice Game of Chess"? Don't rush out to buy. The program has some difficulty in showing you anything but the demo unless you have a mouse card. The staff at Imagineering have assured me that the bug has been noted and supplementary instructions are on the way. So watch this space if you are a beginner or a weak chess player, because the program looks a BEAUTY and I'll certainly let you know when I have a working copy.

Like a book?

Here it is! The Apple book you always needed, but just couldn't get your hands on, is now only a little thought away. Each month in the "Like a book?" section, a book will go to the first WORKING program that solves a simple puzzle.

For example, suppose you have four numbers, and suppose they just happen to be

1147
3023
5837
8651

And suppose you want to know what the LARGEST number that will DIVIDE into all these numbers and give the same REMAINDER is. Well, the program that will solve this - if it's the first drawn at random on the

11th March 1985 - will win the book (sorry, I don't know the title yet!). Good luck. □



COMING NEXT MONTH

Local Profiles

Have you ever sat and wondered what your neighbour does with that Apple all weekend? Perhaps he/she wonders about what you do! So, if you're involved with any aspect of the Apple; if you're an individual or a group; if you're a professional or a rank amateur, write to me at AAR and EXPOSE yourself. All you need to have is a good working idea.

In the March issue two groups as different as chalk and cheese but both involved in educational software will be exposed.

Mary Anne and John Paynter are Computerized Tutorial Systems. Mary Anne and John will speak about their programs, the ideas behind them and the difficulties they experienced in implementing their strategies.

A totally different approach was adopted by the Baileys - a "computer family" from Cessnock. Armed with a new IIe, but no experience, this family has braved it into the software market place.

Both groups, however, share common ground. Firstly they see a very real need to develop Australian software, and secondly, they share a deep love for the Apple. □

Gene Stephan

Educating the Apple

by Gene Stephan

With more and more Apples finding their way into classrooms and learning labs, the education market has been seen as fair game for all and sundry. Certainly the technology has been thrust upon many unsuspecting people through slick sales and promises. This, particularly in NSW, has led to diversity of machines when standardization would have been far more intelligent.

Perhaps what is worse is that there still is a lack of a clear standardization policy and this leads to the notion "if we're going to have computers let's get the cheapest so that at least we can say we have them". Something not repeated in all other states. However, getting "cheap" units is not totally bad as any "time on" must be better than not having touched the technology at all.

It does however lead to inferior products being introduced in large numbers. Now I don't wish to name names or even get into arguments over the benefits or detriments of such things as "bees". I do however consider that in Australia 1985 something like a 64K Apple with drive and monitor is bare bones, and the place for TV and cassette computers is in home entertainment. For education, the highest quality must be the minimum acceptable, and we should always be looking for better.

This is not to say the Apple is without fault. Clearly it isn't. But the major fault of the Apple is in its greatest advantage. Any micro with an immense software base will have its good programs falling into the minority. This is further reinforced by most Australian software importers. Buy cheap and sell dear works fine with games, but not with \$50-\$100 learning programs.

In Personal Computing (US, Sept 1984), over 130 new education programs were itemized. How many have found their way to our shores?

Have a look at the catalogues and you will find it is no more than a trickle.

Apple Computer in Australia have seen this problem, for in 1984 over \$80,000 was provided by way of grants in the area of computer based education.

Incidentally, March 30 1985 is the closing date for the 1985 grants and any person interested should WRITE to the Apple Education Foundation, PO Box 371, North Ryde, NSW 2113, for guidelines and application forms.

Seeing the problem and putting dollars forward is a start. However, this course is long term and good software houses do not materialize overnight - they develop. For this reason short term solutions should go hand in hand with the long term ones. In Australia today there is a mass of potential - increasing awareness of current US software can make the potential easier to realize.

The purpose of "Educating the Apple" will therefore be to display and review more of the newer programs. If they're not available in Australia (YET) - I'll give you the US prices and addresses.

As well as this there will be ideas. If you have something to share, send it in. I'll attempt to present most in the form of "file cards". Simply photocopy the pages of AAR, cut and paste. The first set of ideas deals with Apple paddles - a highly under-rated source of input.

Paddles to measure velocity

At ACEC '84, I chanced to sit through a talk on measuring speed/acceleration using a computer. The amount of gadgetry brought out was impressive and ultimately quite complex, with photocells, black boxes and pocketfuls of resistors and chips. The same problem could be looked at far more easily.



```
5 X = 0 : Y = 0 : Z = 0
10 HOME : VTAB 4 : PRINT "READY TO GO"
20 X = PEEK (-16287)
30 IF X > 127 THEN 50
40 GOTO 20
50 PRINT "FIRST SWITCH TRIPPED"
60 Y = Y + 1
70 Z = PEEK (-16286)
80 IF Z > 127 THEN 100
90 GOTO 60
100 PRINT : PRINT : PRINT : PRINT
110 PRINT "SECOND SWITCH TRIPPED"
120 PRINT : PRINT "TIME = "; Y/63; " SECONDS"
130 PRINT : PRINT : PRINT "ONCE AGAIN ? Y/N "; : GET A$
140 IF A$ < > " Y " THEN END
150 GOTO 5
```

Line 10 Tells you that everything's ready.

Line 20 Looks to see if the button has been pushed.

Line 30 Goes on if it has.

Line 40 Loops back if it hasn't.

Line 50 Tells you that the timing has started.

Line 60 Does a count.

Line 70 Looks to see if the second button has been tripped.

Line 80 If YES then out we go.

Line 90 If NO then continue counting by going back to 60.

Lines 100-120 I have found that as it runs, to divide the Y value by 63 gives you close to the number of seconds. If you modify the program, you may have to sit with a stopwatch and change this value.
eg In 40 seconds real time, the Y counts to 2520.

$$2520/40 = 63.$$

Getting a time value in this way, and knowing your distance between buttons, you can either get the computer to calculate or use the results with pen and paper. The ball can be rolled at any time AFTER the program READY message appears, but MUST NOT start on the button.

AVERAGE SPEED = S/t (see Paddle 1.0)
where S = distance and t = time

But what about acceleration? The system can also allow you to

PROJECT

calculate acceleration but (in a two button system) only when the ball starts from rest. In this case the ball

must be held on the button and timing start from release. Only one line needs to be changed, BUT the

ball MUST be positioned on the button BEFORE the program is RUN.

```

5 X=0:Y=0:Z=0
10 HOME: VTAB 4: PRINT "POSITION THE BALL
ON THE BUTTON AND HIT ANY KEY ": PRINT
"TIMING WILL START WHEN BALL
ROLLS";:GET A$
20 X = PEEK (-16287)
30 IF X < 127 THEN 50
40 GOTO 20
50 PRINT "ROLLING...."
60 Y=Y+1

```

```

70 Z=PEEK (-16286)
80 IF Z > 127 THEN 100
90 GOTO 60
100 PRINT "SECOND SWITCH PASSED !"
110 REM *** INPUT A SIMILAR ROUTINE HERE
111 REM *** FOR A THREE SWITCH SYSTEM
120 PRINT: PRINT: PRINT "TIME = ";Y/63;""
SECONDS"
130 PRINT: PRINT"ONCE AGAIN ?";:GET A$
140 IF A$<> "Y" THEN END    150 GOTO 5

```

PEEKS AND POKEs

GAME I/O 1.0

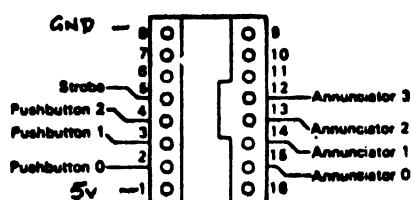
AUSTRALIAN APPLE REVIEW Jan|Feb '85

LOCATION

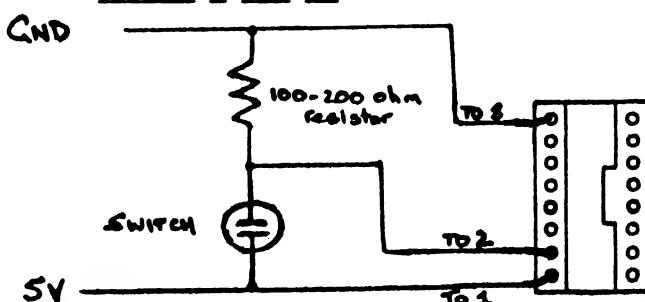
LOCATION	EFFECT
-16287	Read button 0
-16286	Read button 1
-16285	Read button 2

When the button is pressed, the value at these locations exceeds 127. If PEEK(-16286)>127, the button is pressed

GAME I/O PINOUTS



SWITCH 0 SET UP



offcentre

DISKS

ssdd...\$35
dsdd...\$47
100s storage boxes (lockup)...\$35 - postage paid

P.O. Box 233, Woollahra. 2025. (02) 389 - 9767

TONE UP AT THE TERMINALS

Interlace fingers behind your neck. Lift right knee, and touch the left elbow to the right knee. Alternate sides repeatedly 5 times. Benefit - Trim and tone the waistline.

Trimming the Waist

PADDLES 1.0

BASIC SETUP

AUSTRALIAN APPLE REVIEW Jan|Feb '85

thin dowel or other
material to act
as guide

thin board, the
longer the better

large ball bearing,
golf ball or tennis ball

paddles firmly affixed to board with
buttons protruding

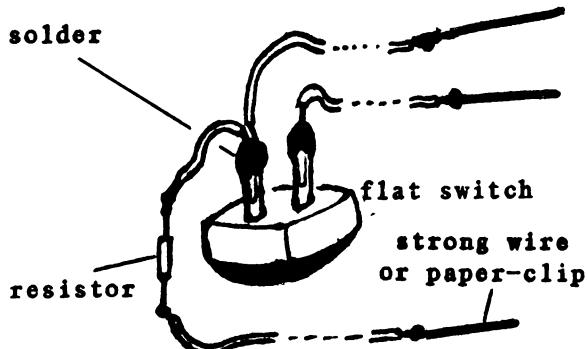
NOTES :

PADDLES 1.1

BACKGROUND

AUSTRALIAN APPLE REVIEW Jan|Feb '85

Apple hardware has provision for four paddles - but only three switches. Usually, two paddles or one joystick are attached by means of the GAME I/O.



If the I/O is accessed directly, then three inputs can be obtained. In this case it would be better to purchase the flatter joystick type switches as these are more sensitive and will give the project a smoother finish. Hook up can be via a do-it-yourself plug, or by the even more do-it-yourself type arrangement outlined here. Check with the PEEKS & POKEs card BEFORE plugging in !

NOTES :



PADDLES 1.2

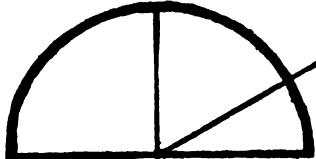
EXTENSIONS

AUSTRALIAN APPLE REVIEW Jan|Feb '85

protractor

board

support



1. Include a protractor to change the slope of the board and graph t Vs angle
2. Try ball of different mass

NOTES :

NEW APPLE IIc SOFTWARE AVAILABLE IN AUSTRALIA

**(In addition to more than 10,000 II+ and IIe programs
that will also run on the IIc)**

<u>NAME</u>	<u>CATEGORY</u>	<u>RRP</u>
Access II	Comms Utility	\$95
AppleWorks	Spreadsheet	\$333
	Word Processor	
	Database	
Bank St Writer (Home)	Word Processor	\$100
Bank St Writer (School)	Word Processor	\$125
Crypto Cube	Entertainment	\$60
Educ. Classics	Education	\$29
Fact & Fiction Toolkit	Education	\$60
FlashCalc	Spreadsheet	\$199
Logo II	Language	\$129
MasterType	Typing Tutor	\$60
Math Maze	Education	\$60
Nice Game of Chess	Entertainment	\$60
PFS File	Database	\$175
PFS Graph	Bus Graphics	\$175
PFS Report	Database Reporter	\$175
PFS Write	Word Processor	\$175
Print Shop	Graphics	\$70
Rocky's Boots	Education	\$70
Spellicopter	Education	\$60
TerminApple	Comms Utility	\$120
Wizardry	Entertainment	\$80

APPLE IIc SYSTEM ACCESSORIES

1. DISK IIc - Adds 143K of on-line storage and makes backup easier.
2. APPLEMOUSE - Features the same pointing mechanism developed for the Lisa and Macintosh computers. Comes with MousePaint, a creative graphics package utilising the Mouse.
3. JOYSTICK AND HAND CONTROLLERS - Maximise the entertainment value of fast-action arcade games.
4. SCRIBE PRINTER - Produces high-quality text and graphics on smooth paper and overhead transparencies.
5. IMAGEWRITER PRINTER - Intergrates high-speed printing capability (120 characters per second) with low-noise convenience.
6. APPLE IIc CARRY CASE - Made of strong, water resistant nylon, designed with travellers in mind. Holds power supply, disks, RF modulator as well as the computer itself.

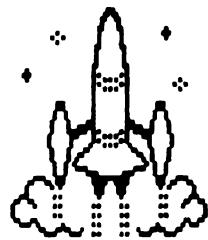
Apple and other manufacturers offer a large variety of other fully compatible accessories.

APPLE COMPUTER OF AUSTRALIA PTY. LTD.

AUTHORISED DEALER LIST

ACT 2601 Computer Information Management, 24 Marcus Clarke St. Canberra 062 486255; **ACT** 2606 ComputerLand Canberra, 22-24 Colbee Court Philip 062 822342; **ACT** 2609 ACT Office Equipment, 37 Townsville St. Fyshwick 062 804710; **ACT** 2617 ComputerLand Belconnen, 71 Oatley Court Belconnen 062 513188; **NSW** 2000 City Personal Computers, 55 York St. Sydney 29 2461; **NSW** 2000 Computer Wave, 325 George St. Sydney 291631; **NSW** 2154 Ferwild Computing Pty Ltd, 258 George St. Liverpool 600 8222; **NSW** 2017 T.I.M.S. 5 Powell St. Waterloo 698 7666; **NSW** 2067 ComputerTime 345 Victoria Ave. Chatswood 4115757; **NSW** 2000 ComputerLand Sydney, 31 Market St. Sydney 290 2955; **NSW** 2000 Grace Bros City Store, Pitt St. Sydney 238 9023; **NSW** 2008 Logical Solutions, 87-91 Regent St. Chippendale 699 4918; **NSW** 2022 ComputerLand Eastern Suburbs, 119 Oxford St. Bondi Junction 389 4466; **NSW** 2038 The Computer Shop, 74 Parramatta Rd. Annandale 517 2999; **NSW** 2060 City Personal Computers, 2/100 Mount St. North Sydney 922 3600; **NSW** 2060 Computer Galerie, 66 Walker St. North Sydney 929 5497; **NSW** 2060 ComputerLand North Sydney, 150 Pacific Hwy. North Sydney 929 4499; **NSW** 2065 The Logic Shop, 330 Pacific Hwy. Crows Nest 439 7188; **NSW** 2066 New Generation Computers, 229 Burns Bay Rd. Lane Cove West 427 4781; **NSW** 2067 ComputerLand Chatswood, Shop 3 Chatswood Plaza Chatswood 411 7611; **NSW** 2070 Compushack, 1/303 Pacific Hwy. Lindfield 4671933; **NSW** 2099 Computermat Dee Why, 665 Pittwater Rd. Dee Why 982 3288; **NSW** 2112 ComputerLand Top Ryde, 7 Pope St. Ryde 808 2866; **NSW** 2134 ComputerLand Burwood, 31 Burwood Rd. Burwood 745 4311; **NSW** 2134 ComputerLand Parramatta, Cnr. Church St. & Victoria Rd. Parramatta 683 3199; **NSW** 2134 Zofarry Enterprises, Cnr. Burwood & Parramatta Rds. Burwood 745 1888; **NSW** 2150 Grace Bros Parramatta, Argyle St. Parramatta 635 0366; **NSW** 2150 Trinity Computing, 1/9 Palmer St. Parramatta 683 4349; **NSW** 2154 Castle Computers, 260 Old Northern Rd. Castle Hill 682 2202; **NSW** 2170 Trinity Computing, 258 George St. Liverpool 600 8222; **NSW** 2200 ComputerLand Bankstown, Shop 1/57 The Mall Bankstown 709 5366; **NSW** 2200 Directo Computer Sales, Cnr. Appian Way & North Tce. Bankstown 708 5311; **NSW** 2220 Direct Computer Sales, 198 Forest Rd. Hurstville 579299; **NSW** 2228 Computer Connection, 629 The Kingsway Miranda 526 1404; **NSW** 2250 ComputerLand Central Coast, 48 Mann St. Gosford 043 241811; **NSW** 2282 Computer Cellar, 3/30 John St. Warren Bay 049 48 4050; **NSW** 2302 ComputerLand Newcastle, 464-474 King St. Newcastle 049 26 3744; **NSW** 2304 Computer Cellar, 62 Maitland Rd. Mayfield 049 67 5700; **NSW** 2300 New Tech, 237 Hunter St. Newcastle 049 2 3343; **NSW** 2340 Northern Computing Services, 119-121 Bridge St. West Tamworth 067 65 3355; **NSW** 2350 Pacific Typewriters (Armidale), 111 Dangar St. Armidale 067 72 7777; **NSW** 2444 Computer Village, 2/119 Horton St. Port Macquarie 065 83 4433; **NSW** 2450 Comput-Ed, 24 Moonee St. Coffs Harbour 066 52 7530; **NSW** 2460 Parrys Office Supplies, 83 Fitzroy St. Grafton 066 42 4934; **NSW** 2480 Parrys Office Supplies, 25 Molesworth St. Lismore 066 21 7331; **NSW** 2500 Computer Spectrum, Shop 13 110-116 Crown St. Wollongong 042 271666; **NSW** 2541 South Coast Computing Services, 25 Meroo St. Bomaderry 044 21 5844; **NSW** 2570 Seahorse Computers, Shop 3, 23 Argyle St. Camden 046 66 6520; **NSW** 2640 Northern Computing Services, 510 Elizabeth St. Albury 060 216322; **NSW** 2650 Northern Computing Services, 69 Trail St. Wagga Wagga 069 215300; **NSW** 2680 Northern Computer Services, Shop 4, 431 Banna Ave. Griffith 069 62 3858; **NSW** 2750 Computer Lighthouse, 320 High St. Penrith 047 314429; **NSW** 2753 The Computer Shop, Bosworth St. Richmond 045 782 3777; **NSW** 2795 Coleman's Office Products, 98-100 Keppel St. Bathurst 063 311966; **NSW** 2830 Computer City, 37 Macquarie St. Dubbo 068 82 6455; **NSW** Northern Computing Services, 60 Bultje St. Dubbo 068 82 6477; **NT** 5750 Mike Sandeman's Computers, 9 Todd Mall Alice Springs 089 52 2436; **NT** 5790 Kent Electronics, 42 Stuart Hwy. Darwin 089 814749; **Fiji** Bhanabhai & Co., 127 Market St. Suva 313022; **PNG** BNG Trading, Mango Ave. Rabaul 92 2666; **PNG** BP Business Systems, PO Box 79 Lae 42 3666; **PNG** Burns Philp Business Systems, Champion Pde. Port Moresby 22 9206; **QLD** 4000 ComputerLand of Brisbane, 1 Adelaide St. Brisbane 07 2219777; **QLD** 4000 Computers & Peripherals, Cnr. Creek & Elizabeth Sts. Brisbane 07 312330; **QLD** 4032 Complete Computer Centre, 605 Gympie Rd. Cherrmside 07 350 1255; **QLD** 4051 The Byte Shop, Shop 5 93 Enoggera Rd. Newmarket 07 352 6621; **QLD** 4068 Myer Brisbane, 318 Moggill Rd. Indooroopilly 07 378 5111; **QLD** 4101 The Computer Shop, 137 Melbourne St. South Brisbane 07 44 6926; **QLD** 4122 Complete Computer Centre, 1929 Logan Rd. Upper Mt Gravatt 07 343 4588; **QLD** 4127 Centrepoint Computer Sales & Rentals, 3354 Pacific Hwy. Springwood 07 209 4766; **QLD** 4152 Computer City, 82 Bennetts Rd. Camp Hill 07 398 6759; **QLD** 4812 Computerworld, Nathan Plaza, Ross River Rd. Aitkenvale 007 75 4300; **QLD** 4068 The Byte Shop, Shop 3 207 Moggill Rd. Taringa 07 371 0711; **QLD** 4163 Cleveland Computer Orchard, 23 Middle St. Cleveland 07 286 3777; **QLD** 4215 ComputerLand of the Gold Coast, 126 Scarborough St. Southport 075 32 8300; **QLD** 4350 Toowoomba Computer Centre, 180B Hume St. Toowoomba 076 32 7542; **QLD** 4558 ComputerLand Sunshine Coast, 18 Horton Pde., Aerodrome Rd. Maroochydore 071 43 1677; **QLD** 4606 Medlab Wondai Electronics, 28B Bramston St. Wondai 071 68 5511; **QLD** 4740 ComputerLand Mackay, Planella House, Brisbane St. Mackay 079 57 2577; **QLD** 4810 Northern Business Equipment, 271-279 Sturt St. Townsville 077 72 4122; **QLD** 4870 Computerworld (Qld) Earlville Shopping Centre, Cairns 070 54 4502; **SA** 5000 Computer Programs Machines & Services, 80 South Tce. Adelaide 08 212 2666; **SA** 5000 ComputerLand Adelaide, 122 Gouger St. Adelaide 08 212 7191; **SA** 5000 Myer Adelaide, Rundle Mall Adelaide 08 217 0123; **SA** 5000 Random Access, 21 Hindmarsh Sq. Adelaide 08 223 2505; **TAS** 7000 The Computer Place, 73 Murray St. Hobart 002 348 7777; **TAS** 7250 Computer Place, 87 Brisbane St. Launceston 003 34 1477; **VIC** 3000 ComputerLand Melbourne 123 Lonsdale St. Melbourne 03 662 2133; **VIC** 3000 Myer Melbourne, 275 Lonsdale St. Melbourne 03 661 3342; **VIC** 3000 Random Access (Vic), 555 Collins St. Melbourne 03 621339; **VIC** 3000 The Logic Shop, 97 Franklin St. Melbourne 03 348 1488; **VIC** 3011 Western Applied Computers, 188 Victoria St. Footscray 03 689 8624; **VIC** 3040 Bus-Stop Computer Systems, 1017 Mount Alexander Rd. Essendon 03 379 6808; **VIC** 3058 Metropolitan Business Machines, 338-342 Sydney Rd. Coburg 03 383 2222; **VIC** 3067 Prologic, 663 Victoria St. Abbotsford 03 429 3188; **VIC** 3103 Choice Computer Centre, 327 Whitehorse Rd. Balwyn 03 830 5122; **VIC** 3108 Datapro Computer Systems, 5/861 Doncaster Rd. Doncaster 03 848 8299; **VIC** 3124 ComputerLand Camberwell, 399 Riversdale Rd. Camberwell 03 813 1300; **VIC** 3125 Astro Educational Services, 1-3 Ruby St. East Burwood 03 232 4000; **VIC** 3127 I.M.A. Computer Co. 292 Canterbury Rd. Surrey Hills 03 836 8835; **VIC** ComputerLand Box Hill, 899 Whitehorse Rd. Box Hill 03 890 0468; **VIC** 3175 Rob's Computer Centre, 295 Thomas St. Dandenong 03 791 2900; **VIC** 3199 Alpha Research & Development, 9 Wallace Ave. Frankston 03 789 4658; **VIC** 3199 Computers 2000, 29 Ross-Smith Ave. Frankston 03 781 4244; **VIC** 3205 ComputerLand South Melbourne 19/37 Albert Rd. South Melbourne 03 266 8647; **VIC** 3205 Insystems, 337 Moray St. South Melbourne 03 690 2899; **VIC** 3220 Geelong Computer Centre, 39 Gheringhap St. Geelong 052 22 2844; **VIC** 3350 Cygnus Computers, 128 Mollison St. Bendigo 054 42 4666; **VIC** 3350 Harmon Bros Sale, 602 Sturt St. Ballarat 053 31 3022; **VIC** 3400 Wimmera Office & School Supplies, 72 Wilson St. Horsham 053 82 5511; **VIC** 3500 Mildura Office Equipment, 91 Langtree Ave. Mildura 050 23 3611; **VIC** 3585 Cygnus Computers, 198 Beveridge St. Swan Hill 050 32 9011; **VIC** 3850 Latrobe Valley Computer Services, 260 York St. Sale 051 44 6155; **VIC** 3977 Associated Micro Technology, Shop 6 33-39 High St. Cranbourne 059 96 4928; **WA** 6000 Myer Perth, 246 Murray St. Perth 09 321 0151; **WA** 6001 ComputerLand Perth, Suite 3 SGIO Atrium, 170 St George's Tce. Perth 09 322 7188; **WA** 6005 Computer Choice, 1297 Hay St. West Perth 09 322 5651; **WA** 6009 Computer Age, 97 Stirling Hwy. Nedlands 09 389 1122.

Space Shooter

**by Gene Stephan**

Not another Shoot-em-up! Yes, it is. If killing aliens isn't your favourite sport, the program may still be worth entering because it uses machine language for its graphics tables and so can give you some good practice with the monitor.

Now, most people get sweaty palms when they inadvertently see the * prompt, and decidedly more uncomfortable when the registers print out - A=FF X=00 Y=00 P=00 S=FF or similar. Never seen it? OK,

grab your computer and get into BASIC.

```
]CALL-151 (RET)
* (RET) (RET)
```

What you are seeing is machine language. The numbers are hex instruction codes for the 6502. To make a little more sense out of them try...

```
*L(RET)
```

What you should see now is a page of disassembled code. The registers are also easy to view...

* (CTRL)E (RET) - CONTROL E + RETURN

and back to BASIC with...

```
* (CTRL)B
```

or *3D0G (RET) can be used if DOS has been booted.

Interesting? Well, there'll be a few more words about this a little later on, but it's certainly not intimidating!

The first section is in BASIC. Enter this and SAVE to disk under whatever title you desire.



STAR SHOOTER BY B.BURNS



```

10 REM
20 REM
30 REM STAR SHOOTER
40 REM BY
50 REM B.BURNS
60 REM
70 GOSUB 860
80 GOSUB 710
90 TEXT: HOME: IF PEEK(233) 32 THEN PRINT CHR$(4)
  "BLOAD SHP.OBJ"
100 POKE 232,0 : POKE 233,32 : VTAB 12
110 INPUT "PLEASE SELECT LEVEL (1-3) ";L:IF L 1 OR L 3
  THEN 90
120 IL=L
130 REM "***** INITIALIZE HI RES SCREEN *****
140 HGR2 : ROT=0 : SCALE=1 : HCOLOR=3 :
  DRAW 1 AT 140,96 : DRAW 6 AT 5,5 : DRAW 7 AT 33,5
150 DRAW 8 AT 12,15 : DRAW 9 AT 40,15 : DRAW 10 AT 17,32:
  DRAW 11 AT 45,32
160 FOR I = 1 TO 100 : HCOLOR = INT(RND(1)*7+1) : HPLOT
  RND(1)*280, RND(1)*192 : NEXT
170 REM "***** INITIALIZE ALIEN SHIPS *****
180 FOR I = 1 TO 4 : READ XI(I), YI(I), RO(I) :
  X=INT(RND(1)*10+1)
190 IF X<2>INT(X/2) THEN 230
200 IF X/2 = INT(X/2) THEN SH(I)=2
210 X = INT(RND(1)*10+1): IF X=7 THEN SH(I)=3
220 IF X=10 THEN SH(I)=4
230 NEXT: HCOLR=3
240 FOR I = 1 TO 4 : IF SH(I)>0 THEN ROT = RO(I) :
  DRAW SH(I) AT XI(I), YI(I)
250 NEXT

260 REM "***** READ PADDLE AND POSITION *****
270 P = PDL(0) : IF L>5 THEN L=5
280 CAN = INT((P+45)/75) : IF CAN=0 THEN CAN = 1
290 IF Y>0 THEN HCOLOR = 0 : ROT = R :
  DRAW 5 AT X,Y: HCOLOR = 3
300 ON CAN GOSUB 360,370,380,390
310 REM "***** CHECK BUTTON PRESS *****
320 IF PEEK(-16287)>127 THEN GOSUB 400
330 FOR I = 1 TO 4: IF SH(I)>1 THEN ROT = RO(I) :
  HCOLOR = 0 : DRAW SH(I) AT X(I),Y(I) :
  HCOLOR = 3 : ON I GOSUB 530,550,570,590
340 NEXT: FOR I = 1 TO 4 : SH = SH+SH(I) : NEXT:
  IF SH=0 THEN RESTORE: L = L+.15 : HCOLOR = 0 :
  ROT = R: DRAW 5 AT X,Y: HCOLOR = 3 : GOTO 180
350 SH = 0 : GOTO 270
360 ROT=48: DRAW 5 AT 140,87 : X = 140 : Y = 87 :
  R = 48 : RETURN
370 ROT=0 : DRAW 5 AT 149,95 : X = 149 : Y = 95 :
  R = 0 : RETURN
380 ROT=16 : DRAW 5 AT 140,105: X = 140 : Y = 105:
  R = 16 : RETURN
390 ROT=32 : DRAW 5 AT 131,96 : X = 131 : Y = 96 :
  R = 32 : RETURN
400 REM "***** FIRE THE CANNON *****
410 ON CAN GOSUB 430,450,470,490
420 RETURN
430 IF SH(CAN)>2 THEN HPLOT 140,82 TO XI(CAN), YI(CAN):
  GOSUB 620 : HCOLOR = 0 : HPLOT 140,82 TO XI(CAN), YI(CAN):
  HCOLOR = 3: RETURN
440 HX = 140 : HY = 82 : GOSUB 510 : RETURN

```

PROGRAMMING

```

450 IF SH(CAN)<2 THEN HPLOT 153,95 TO XI(CAN), YI(CAN):
GOSUB 620 : HCOLOR = 0 : HPLOT 153,95 TO XI(CAN), YI(CAN):
HCOLOR = 3: RETURN
460 HX = 153 : HY = 95 : GOSUB 510 : RETURN
470 IF SH(CAN)<2 THEN HPLOT 140,109 TO XI(CAN), YI(CAN):
GOSUB 620 : HCOLOR = 0 : HPLOT 140,109 TO XI(CAN), YI(CAN):
HCOLOR = 3: RETURN
480 HX = 140 : HY = 109 : GOSUB 510 : RETURN
490 IF SH(CAN)<2 THEN HPLOT 127,96 TO XI(CAN), YI(CAN):
GOSUB 620 : HCOLOR = 0 : HPLOT 127,96 TO XI(CAN), YI(CAN):
HCOLOR = 3: RETURN
500 HX = 127 : HY = 96 : GOSUB 510 : RETURN
510 HPLOT HX,HY TO XI(CAN),YI(CAN):ROT = RO (CAN):HCOLOR=0:DRAW
SH(CAN) AT XI(CAN),YI(CAN): SCALE = 2 : HCOLOR =3 :DRAW SH(CAN)
AT XI(CAN), YI(CAN)
520 GOSUB 620 : HCOLOR = 0 : HPLOT HX,HY TO XI(CAN), YI(CAN):
DRAW SH(CAN) AT XI(CAN),YI(CAN) : SC = SC+(SH(CAN)*IL*5):
SH(CAN)=0 : SCALE = 1: RETURN
530 YI(I) = YI(I)+(5*L) : DRAW SH(I) AT XI(I),YI(I): IF YI(I) >
= 87 THEN POP: GOTO 650
540 RETURN
550 XI(I) = XI(I)-(7*L) : DRAW SH(I) AT XI(I),YI(I): IF XI(I) <
= 149 THEN POP: GOTO 650
560 RETURN
570 YI(I) = YI(I)-(5*L) : DRAW SH(I) AT XI(I),YI(I): IF YI(I) <
= 105 THEN POP: GOTO 650
580 RETURN
590 XI(I) = XI(I)+(7*L) : DRAW SH(I) AT XI(I),YI(I): IF XI(I) >
= 131 THEN POP: GOTO 650
600 RETURN
610 REM "***** CANNON SOUND *****"
620 FOR I= 12 TO 10 STEP-1 : POKE 776,7 : POKE 777,1:
CALL 778 : NEXT: RETURN
630 REM "***** DESTRUCT SOUND *****"
640 POKE -16336, PEEK(-16336): POKE -16336, PEEK (-16336):
POKE -16336, PEEK (-16336): RETURN
650 FOR I= 1 TO 10 : SCALE = I: DRAW 1 AT 140,96: GOSUB 640:
NEXT
660 TEXT: HOME: IF SC>HS THEN VTAB 7 : PRINT "NEW
HI- SCORE ";: FLASH: PRINT SC: NORMAL: HS= SC:
GOTO 680
670 VTAB7:PRINT "HI-SCORE ";HS:VTAB(9):PRINT
"YOUR SCORE ";:SC
680 VTAB 20 : PRINT " ONCE AGAIN ???? ";: GET A$:
IF A$="N" THEN END
690 SC= 0: R=0:X=0:Y=0: IL = 0 : RESTORE : GOTO 90
700 DATA 140,12,32,260,96,48,140,178,0,16,96,16
710 REM "***** TITLE *****"
720 TEXT: HOME
730 VTAB 10 : A$ = "STAR SHOOTER": INVERSE: GOSUB 840 :
NORMAL
740 VTAB 12 : A$= "*****": FLASH: GOSUB 840: NORMAL
750 VTAB 14 : A$= "BY BILL BURNS": GOSUB 840
760 VTAB 23 : PRINT "NEED INSTRUCTIONS ?? (Y/N) ";: GET ANS$:
IF ANS$(1)"Y" THEN RETURN
770 HOME: VTAB 2 : A$="STAR SHOOTER": FLASH: GOSUB 840:
NORMAL: PRINT
780 PRINT "THE OBJECT OF THE GAME IS TO SHOOT AS":
PRINT "MANY ALIENS & ASTEROIDS AS POSSIBLE":
PRINT "PADDLE 0 TURNS & FIRES YOUR CANNON !":PRINT
790 PRINT "THERE ARE 3 LEVELS OF PLAY FROM 1 TO 3"
PRINT "EASIEST TO HARDEST. AS YOUR SCORE"
PRINT "INCREASES SO DOES THE GAME SPEED !!"
800 PRINT: PRINT

```

```

PRINT "SCORES ARE .":;
PRINT "TYPE      L1    L2    L3"
810 PRINT "LARGE ALIEN   10    20    30"
PRINT "SMALL ALIEN   15    30    45"
PRINT "ASTEROID     20    40    60"
820 VTAB 23: PRINT " ANY KEY TO PLAY ..... ":
X=PEEK(-16384): IF X>127 THEN POKE -16368,0:
RETURN
830 GOTO 820
840 HTAB 20- (LEN (A$)/2) : PRINT A$ : RETURN
850 REM "***** SOUNDS LIKE ALIENS *****"
860 POKE 776,255 : POKE 777,255 : POKE 778,173:
POKE 779,48 : POKE 780,192 : POKE 781,136:
POKE 782,208 : POKE 783,5 : POKE 784,206:
POKE 785,9 : POKE 786,3 : POKE 787,240
870 POKE 788,9 : POKE 789,202 : POKE 790,208:
POKE 791,245 : POKE 792,174 : POKE 793,8 :
POKE 794,3 : POKE 795,76 : POKE 796,10 :
POKE 797,3 : POKE 798,96 : RETURN

```



Have you saved the program?
Right, in that case some quick notes
on the monitor entry may be in order.

Firstly, you MUST know the
STARTING ADDRESS. This is not
difficult as it is usually given.
Secondly, you MUST adhere to a
strict syntax. Monitor does not allow
spare spaces and does not automatically
insert spaces (parse) as Applesoft does.
To enter code, the starting address MUST be followed
by a colon and code (in 2 DIGIT
format) MUST be separated by a
space. For example, looking at the
first line.

```

enter basic ] (RET)
enter monitor ]CALL-151 (RET)
enter code *2000:0B 00 18 00 67
00 AB 00 (RET)

```

There are eight entries, so the last
address is 2007 and the next is 2008.
But what about the one following? If
you said 2010, you'd be right! 2016 is
wrong.

The reason for this is that we are
dealing with HEX (base 16) numbers
and not DECIMAL (base 10). To
signify the difference, the addresses
should be written \$2000, \$2008 and
\$2010.

Counting in hex...
HEX 0 1 2 3 4 5 6 7 8 9 A B C D E F 10 11
DEC 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
..... is straightforward.



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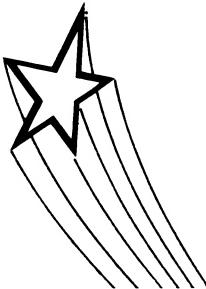
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STAR SHOOTER



If you make an error while keying in the code, don't worry. Inserting the new number into the location removes the old. For example, if you entered 2000:0B 00 18 00 64 00 AB 00, and now want to change the 64 to 67,

*2005:67 (RET)

....will do the trick.

To check locations, simply type the start address and the final address separated by a period.

*2000.2008 (RET) will display that range of memory.

Finally, what do you do when it's all been entered or you've simply had enough for the session? Saving this code again requires more attention than with BASIC.

1. Start address MUST be known.
2. Length MUST be known.
3. The name MUST be the same as will be accessed by the BASIC program.

The total length is \$22E, so irrespective of how much you have typed, always...

back to BASIC *(CTRL)B (RET)
BSAVE to DISK JBSAVE SHP.OBJ,
A\$2000, L\$22 E (RET)

To get this back into memory to work on...

BOOT DOS & ...]BLOAD SHP.OBJ
(RET)

*2000.222D	2068- 80 80 80 80 80 AB 36 36	20D8- 0E 35 2D 2D 04 00 24 2C	2148- 35 27 00 36 36 36 36 25	2188- 2D 2D 25 3F 3F 24 2D 3C
2000- 0B 00 18 00 67 00 AB 00	2070- 2E 2D 64 15 36 36 36 3E	20E0- 36 2D 36 27 37 36 27 24	2150- 24 24 24 2C 2D 15 3F 77	21C0- 27 24 2C 2E 2C 2E 6C 36
2008- C4 00 DE 00 E9 00 35 01	2078- 24 24 24 3C 36 36 36 3E	20E8- 00 36 36 36 36 2D 2D 25	2158- 29 1E 3F 2E AD 37 35 3F	21C8- 36 36 36 25 24 24 24 2C
2010- 4B 01 A6 01 DE 01 0F 02	2080- 80 20 24 37 36 37 3F 2C	20F0- 3F 3F 24 24 24 6C 49 11	2160- 37 2D 00 80 80 80 80 80	21D0- 2D 15 3F 77 29 3E 3E 37
2018- 80 80 80 80 80 80 28	2088- 25 24 37 3E 37 3F 36 3F	20FB- 36 36 36 2E 24 24 24 24	2168- 80 40 36 36 36 36 2D 2D	21D8- 2D 3E 0E 35 27 00 24 24
2020- 2D 15 15 15 15 15 36 36	2090- 2C 3C 24 24 64 36 36 2E	2100- 2D AD 3F 77 31 3E 37 2D	2170- 25 3F 24 24 24 6C 49	21E0- 24 2D AD F6 3F 4E 31 1E
2028- 36 1E 1E 1E 1E 3F 3F	2098- 24 24 15 36 2E 24 2C 36	2108- 36 2E 24 24 24 05 40 2E	2178- 11 36 36 36 2E 24 24 24	21E8- 3F 4E 09 80 80 40 36 0E
2030- 3F 07 38 38 38 20 24	20A0- 25 24 24 24 37 36 26 00	2110- 2C 2E 2C 35 37 F5 37 37	2180- 24 2D AD 3F 77 29 3E 9F	21F0- 35 DF 2A 2D 05 80 28 20
2038- 24 64 0C 0C 0C 0C 2D 16	20A8- 80 A8 36 36 AE 15 15 3E	2118- 37 37 2E 2C 2E 2C 2E AC	2188- 2D 35 3F 77 29 3E 2E 00	21F8- 24 48 35 B7 2A 3E 4E 09
2040- 2D 75 0E 0E 0E 36 36 1E	20B0- 3F 3F 67 20 20 20 3C	2120- 21 24 24 24 2C 2D 20 3E	2190- 2D 2D 05 20 E4 3F 3F 20	2200- 20 24 24 2C 2D 15 F6 3F
2048- 1E 1E 1E 3F 3F 07 38 38	20B8- 3F 3F 0C 24 24 24 35 36	2128- 3F 37 36 2D 3E 37 2E 2D	2198- 64 2D 2D 3E 3F 37 2E 15	2208- 0E 15 15 0D 25 27 00 20
2050- 38 29 24 64 0C 0C 96	20C0- 36 2E 04 00 2D 05 60 2D	2130- 35 3F 3F 04 00 31 36 36	21A0- 2E 36 3F 3F 04 00 31 25	2210- 24 64 2D 15 96 39 3F 97
2058- 1A 36 36 2D 0D 2D 05 E0	20C8- 0C E4 E7 3F 3F 3F F7	2138- 36 2E 24 24 24 35 25	21A8- 35 36 36 2E 24 24 24 24	2218- 2D 25 0D 40 36 0E 2D 05
2060- 3F 4C E1 3F 36 26 00 80	20D0- 17 2E 2D 2D 28 85 BB DB	2140- 35 35 37 F5 3F 2E 35 77	21B0- 24 35 25 0D 36 36 36 36	2220- 20 6C 36 0E 35 DF 2A 2D
				2228- 05 80 60 24 04 00

Applesoft foolproof input subroutine

by Phillip Dimond

The perennial problem with writing software that is intended for mass consumption is that of protecting the end user from humbling messages like "TYPE MISMATCH ERROR". Such messages not only reduce productivity, but also can lead to stressful situations arising between user and program.

The situation can be avoided by screening all user inputs. To demonstrate how this can be done a short routine is presented. Type this code at the end of your program and access it by means of a GOSUB 10000 when the program requires user input.

The routine uses the "GET" statement, and all input is taken in the form of a string, thus eliminating the possibility of type mismatch errors. The routine requires a variable to be passed to it, this being LMAX, which defines the maximum number of characters to be input. If this feature is not required, then it may be ignored by deleting line 10045.

If certain characters are to be ignored, then they may be checked for by inserting relevant lines between lines 10010 and 10020, for example, to keep "X" out of the input, a line such as:

10015 IF CH\$="X" THEN GOTO 10010

may be inserted. The actual input string is returned as A\$ to the main program.

By using error checking routines such as these, the program's operation may be insured against all but conscious efforts by the user to disrupt the program.

```
*****  
SUBROUTINE TO ENABLE ERROR TRAPPING ON INPUT TO AVOID A PROGRAM "BOMBING OUT" ON AN INEXPERIENCED USER  
*****
```

```
10000 REM  
10001 REM  
10001 REM  
10003 REM  
10004 REM  
10005 REM  
10009 LS = 0  
10010 GET CH$: PRINT CH$;  
10020 IF CH$ = CHR$ (13) THEN RETURN  
10030 IF CH$ = CHR$ (8) THEN IF LS = 0 THEN A$ = LEFT$ (A$,LS - 1):LS = LS - 1: GOTO 10010  
10035 IF CH$ = CHR$ (8) THEN IF LS = 0 THEN 10010  
10040 A$ = A$ = CH$:LS = LS + 1  
10045 IF LS = LMAX THEN RETURN  
10050 GOTO 10010
```

Worm in the Apple



Sometimes I wonder whether Apple are not their own worst enemy. The press in Australia have an on-going love affair with Apple, and I know of no journalist who speaks ill of Mike Buchanan of Burson Marsteller (although the finger of ridicule may on occasion have been pointed at the English language as she is write in their press handouts).

With all this goodwill – far more than exists for any other computer company in Australia – Apple, this lowly worm would have thought, would have gone out of their way to keep the press happy and smiling.

And this Worm would once again have been wrong.

Hark then to the amazing case of one of Australia's major metropolitan newspapers. Its computer editor, a nice young lad though of Welsh descent, decided that one way to emphasise the quite remarkable facilities built into the Macintosh, was to make a series of New Year's cartoons which would be published in the said august metropolitan daily journal.

And Burson Marsteller – Apple's long suffering public relations advisers – happily provided all the necessary gubbins for such free publicity to be achieved. Then in a masterly stroke of press communications, unrivalled since the burning of the library at Alexandria, removed the printer before the illustrations had been printed out. To lend it to someone else who worked on the same metropolitan daily newspaper, because Burson Marsteller's ration of these machines is exactly two which meant that this newspaper had 50 percent of the machines available. (It is true that this says nothing for the organisation within Australian newspapers, which are constantly in a state of chassis and haverack.)

It would be wrong for this Worm to have the temerity to list here the whole sad Macintosh fiasco, where journalists consistently received the wrong machine at the wrong time

with the wrong power line. Which of us can be perfect?

Nor should we mention the innocent journalist who went out to lunch and returned to find, shock horror, that Apple had removed his own personal Apple computer for which he had paid with coin of the realm. It is not good to dwell on these matters. They lead to heartburn and sundry other ailments.

Several theories have been advanced for the strange attitudes of the denizens of the Ryde stately pleasure dome.

The first is that the management suspects all journalists suffer from either leprosy or AIDS (or very possibly both) so that all machines have to be fumigated after return before being used.

Or worse that I could mention, but this is a family magazine.

This Worm's New Year resolution is to be nice to all Apple executives in the fond hope that one day they will see the light and understand the power of press relations. It may take time but we Worms are noted for our patience.

Wozniak in NZ?

Rumour was ever a strange thing.

A trans-Tasman cousin Worm tells me he saw a person closely resembling Steve Wozniak spending his holidays there. He was not using the pseudonym Rocky Clarke.

Indeed, according to my trans-Tasman cousin, he was interviewed on a local radio station, where he gave forth a spate of information

regarding a new Apple II which does not use the 6502 chip, nor yet the 65C02. But something totally different which allows it to run all Apple programs but is a true 16 bit chip. And that co-resident on the board is a 16 bit CP/M chip.

I cannot possibly believe that any of this can be true. I will ignore the circumstantial evidence that he talked at length about the early days of the Homebrew Club, the genesis of the original Apple.

Surely if the Woz had gone to New Zealand we poor Australian cousins would have been told.

Surely?

Apple's press relations in Australia cannot have fallen that low.

Macintosh mailing bug

Read then this sad tale and weep.

It appears that a senior businessman wanted to construct a mailing list. Not, you would think, a difficult task. He had a Macintosh and a printer and he searched around and found a suitable mailing list program.

After he had spent much time and money entering over a thousand names and addresses, he thought a print-out would be in order. It was then that disaster struck. The program simply refused to print out.

This businessman returned to the balding Thespian distributor from whom the program had been obtained, who immediately sent his top technical boffin around to fix up the problem.

But he couldn't do it.

For there was a fatal flaw in the program that could not be easily rectified. Not without losing the thousand names that had already been entered.

The businessman said "Dash, blow, bother" and threw down his whitewash brush.

The view of the originators of the program is that debugging a program is so costly these days it is best to put the program on the market and let the public find the bugs.

This Worm wonders if they use the same technique with designing new aircraft? □

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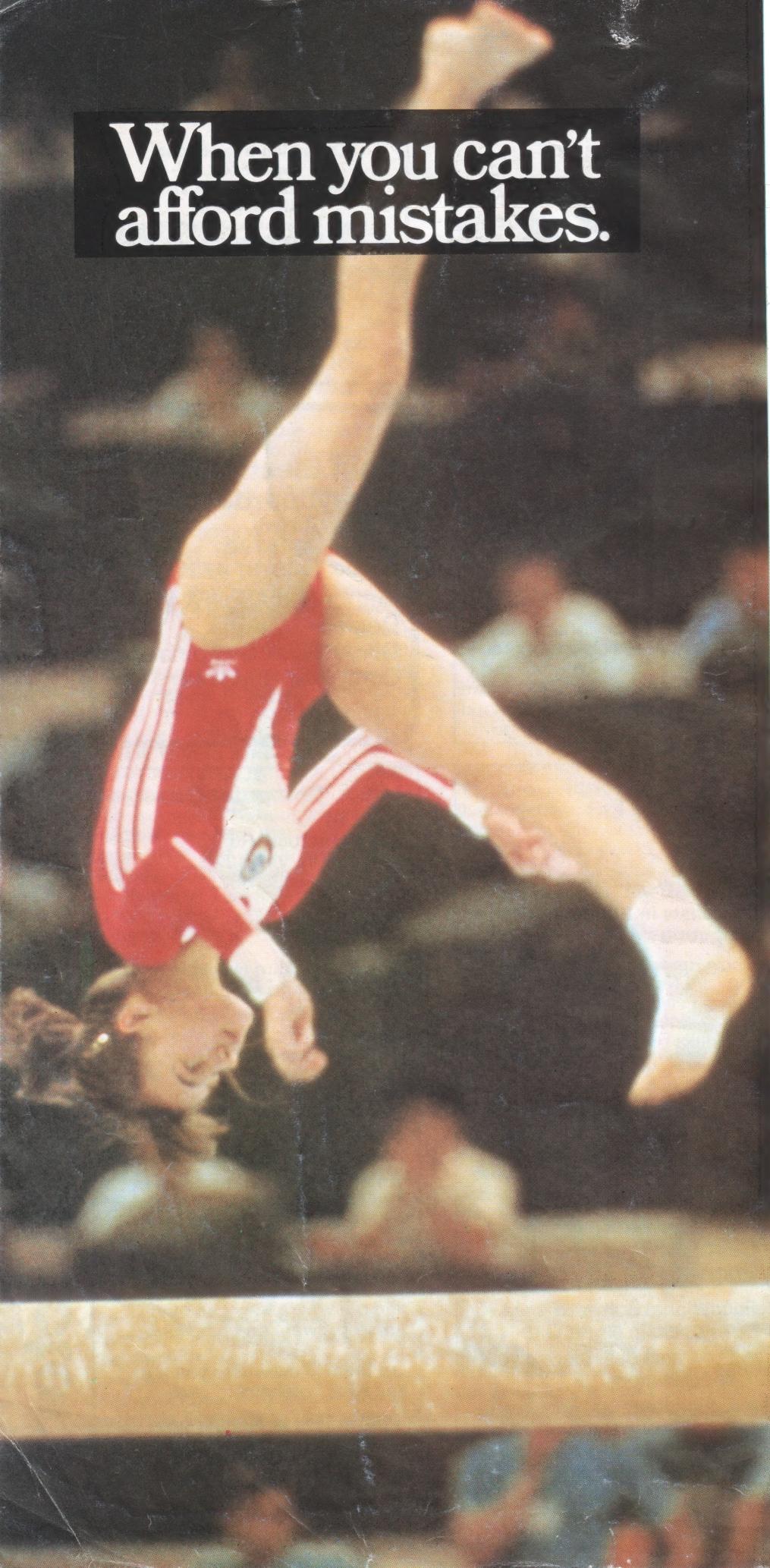
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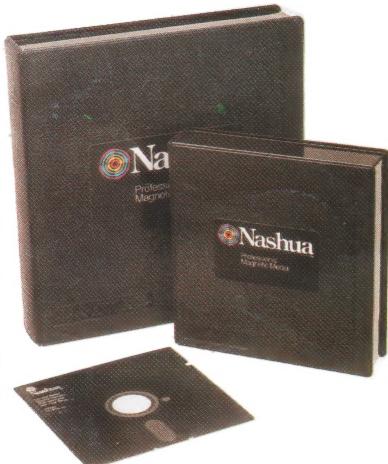
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